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Discriminant Profile of Dimensions of Acquired Disability on Domains of Posttraumatic Growth

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Abstract

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Abstract

The transformative process of personal growth following suffering and challenges, or posttraumatic growth (PTG), is limited in persons with acquired disability. The dimensions of acquired disability, as outlined by the World Health Organization, include impairments in body functions, body structures, and growth restrictions in activities and participation. The 5 domains of PTG include personal strength, new possibilities, relating to other people, appreciation of life, and spiritual change. Using discriminant function analysis, the purpose of this quantitative study was to identify a discriminant analysis of the dimensions of acquired disability on the domains of posttraumatic growth. The first research question focused on investigating the number of statistically significant uncorrelated linear combinations. The second research question reviewed the multivariate profile (or profiles if there is more than one statistically significant function) of the Posttraumatic Growth Inventory domains that discriminant the dimensions of acquired disability. A cross-sectional survey design was used to gather data from 161 individuals with acquired disability who were over 18 years of age and were at least 1 year postdiagnosis. Participants were invited to participate using a Facebook page and targeted advertising, as well as personal invitations to online support groups advocating for persons with acquired disability. This study and analysis only found 1 significant pairwise connection between impairment in body structure and growth, activity, and participation with the PTG domain of personal strength. Results may be used to guide the planning and implementation of aftercare programs for individuals diagnosed with an acquired disability to help promote PTG.

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Chapter 1: Introduction to the Study

The topic of this study is posttraumatic growth, specifically in populations with an acquired disability. Posttraumatic growth is described as any positive change resulting from the experience of a significant life crisis or traumatic event (Calhoun & Tedeschi, 2014). The goal of this study was to determine if those who meet dimensions of acquired disability, as categorized by the World Health Organization (WHO) (2001), experience posttraumatic growth. Should an individual do so, the purpose of the study was to determine if dimensions of acquired disability are more likely to score high or low in the five domains of posttraumatic growth. This information will provide individuals with acquired disability, and the relational and professional people who support them, a focus for rehabilitation goals and lay the groundwork for growth in specific domains of posttraumatic growth. As limitations in physical, emotional, and psychological efforts exist in any individual coping with a life crisis (Bishop, 2012), the ability to focus on those domains best shown to produce growth will allow the best chance of experiencing posttraumatic growth. To date, no research was found that identifies a discriminant analysis of the dimensions of acquired disability on the domains of posttraumatic growth.

The first section presented in Chapter 1 is the background which includes the problem statement, purpose, and research questions. The second section includes the theoretical framework and the nature of the study. Key definitions, assumptions, and factors of validity will make up the third section of this chapter. The chapter concludes with limitations and the significance of the study. A summary and transition to Chapter 2 completes this chapter.

Background and Problem Statement

Over the past 22 years, research has expanded from studying how a major life crisis or trauma effects one negatively to how the same event may produce growth (Park & Ai, 2006). The term posttraumatic growth, first used by Calhoun and Tedeschi (2009), emerged from a theme found in ancient literature and philosophy, religious thinking, and early social sciences. The transformative process resulting from suffering and crisis is a common theme in early studies of resilience, hardiness, adversarial growth, positive rumination, endurance, and vitality (Calhoun & Tedeschi, 2014). Resilience is found in some of the earliest writings (de Montaigne & Coste, 1685) that directed research in the social sciences in the 1900s. Resilience, however, describes an individual's ability to return to baseline, while posttraumatic growth describes a positive change in fundamental ways beyond what one was before the crisis (Tedeschi & Kilmer, 2005). When researchers first began to look for connections between trauma and change, the behaviors, thinking, and emotional responses to trauma were negative. Posttraumatic stress and the validity of posttraumatic stress disorders, its instruments, and treatment options were on the center stage of most quantitative and qualitative studies of the effect of traumatic events (Bray et al., 2016; Groleau, Calhoun, Cann, & Tedeschi, 2013; Horn, Charney, & Feder, 2016; O'Rourke, Tallman, & Altmaier, 2008). Posttraumatic growth and the five domains of such, is now the focus of modern research and traumatic events.

Calhoun and Tedeschi (2009) identified five domains of posttraumatic growth that include personal strength, new possibilities, relating to other people, appreciation of life, and spiritual change. The first, personal strength, is described as an internal, positive

change emotionally and cognitively (Calhoun & Tedeschi, 2014). The second domain, new possibilities, includes new activities or opportunities as the result of a significant change in life purpose because of crisis (Calhoun & Tedeschi, 2014). Relating to others, the third domain, are positive changes in personal, professional, and mentoring relationships (Calhoun & Tedeschi, 2014). The fourth domain of posttraumatic growth, appreciation of life, is defined as, "A greater appreciation for life and for what one actually has and a changed sense of the priorities of the central elements of life are common experiences of persons dealing with crisis" (Calhoun & Tedeschi, 2014, p. 6). The fifth and final domain, spiritual change, includes a greater clarity of basic existential questions and a transformation in spiritual beliefs (Calhoun & Tedeschi, 2014).

The International Classification of Functioning, Disability, and Health (WHO, 2001) dimensions of acquired disability have been used in numerous quantitative and qualitative designs in the last 16 years. Used extensively in rehabilitation studies, these include neurological conditions (Lexell & Brogardh, 2015; Raggi et al., 2015), vocational rehabilitation (Escorpizo et al., 2011; Glässel et al., 2011), sleep disorders (Gradinger, Boldt, Högl, & Cieza, 2011; Gradinger, Glässel, Bentley, & Stucki, 2011) and movement impairment disorders. The dimensions of acquired disability as distinguished by the WHO (2001) include impairments in body functions, body structures, and restrictions in activities and execution of tasks. In this study I performed a discriminant profile of the dimensions of disability on the domains of posttraumatic growth. To date, this type of analysis has not been completed and with this information three problems can be addressed. The first research problem is determining to what degree individuals with

acquired disability experience posttraumatic growth. The second and third problems this research addressed are to discover the domains of posttraumatic growth individuals with acquired disability score both high and low.

Purpose of the Study

The study will be able to use the discriminant profile to help individuals with acquired disability and those within their support system, determine the focus of postevent rehabilitation to best promote posttraumatic growth. This would include types of self-help systems to become active in while the individual learns to adapt and cope. Influences on specific types of therapy that counselors and psychologists may choose to use would also be assisted by this analysis to produce positive outcomes. In addition, students and young adults in postsecondary settings will be able to find disability support services that offer opportunities and accommodations in specific posttraumatic growth domain-focused activities. This kind of support is instrumental in producing positive outcomes in students with acquired disabilities (Abreu, Hillier, Frye, & Goldstein, 2016; Dong & Lucas, 2016). This might change the types of materials and assistive devices made available to students with acquired disability, and emotional and cognitive supports provided through developmental counselors and disability support specialists on campus (Stein, 2013). The discriminant profile of acquired disability on the domains of PTG will assist those instrumental in designing and implementing PTG programs for patients diagnosed with life-changing diagnoses and disability.

The study is a cross-sectional design and quantitative study. Discriminant profiles are developed from statistical analysis to identify and describe linear combination of

variables as a means of determining how these variates produce groups of cases to be discriminated (Field, 2013). The quantitative study discriminant analysis has two basic purposes: (a) to describe differences among the three acquired disability dimensions following a multivariate analysis of variance, and (b) classify individuals with acquired disability into groups that are subsequently differentiated along five domains of posttraumatic growth (Mertler & Reinhart, 2017). For the purpose of this study, discriminant analysis was used in classification of the three dimensions of acquired disability to "determine dimensions that serve as the basis for reliably—and accurately—classifying participants into groups" (Mertler & Reinhart, 2017, p. 280) of posttraumatic growth domains they commonly score high versus those in which they score low.

Research Questions

The following research questions formed the study.

RQ1:What are the number of statistically significant uncorrelated linear combinations?

RQ2:What is the multivariate profile (or profiles if there is more than one statistically significant function) of the posttraumatic growth inventory domains that discriminant the dimensions of acquired disability?

The data for this study was collected through internet surveys. The data are from a sample of people with acquired disability and not the entire population. The estimated population in the U.S. with disability ranges from 37 to 56 million; 24.4% of the population over the age of 18 (Center for Disease Control and Prevention, CDCP, 2017a). In this study, I assumed independent random samples to ensure valid probability values. The null hypothesis is that the canonical correlation value is equal to zero in the

population. This value is "equivalent to the correlation between the discriminant scores and levels of the dependent variable" (Mertler & Reinhart, 2017, p. 281), the dimensions of acquired disability. The alternative hypothesis is that the canonical correlation value is greater than zero in the population.

Theoretical Framework and Nature of the Study

The theoretical lens for posttraumatic growth began with theories on resilience, hardiness, rumination, and adversarial growth (Calhoun & Tedeschi, 2014). These theories form the framework for posttraumatic growth, that difficult circumstances may be the impetus for growth and that suffering and loss may develop into strength and independence (Calhoun & Tedeschi, 2014). Masten (2001) defined resilience as a "class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development" (p. 228). Individuals respond differently to traumatic events, and resilience describes the "positive pole of individual differences in people's response to stress and adversity" (Rutter, 1987, p. 316). As resilience studies became more popular, social researchers determined that resilience is not necessarily and extraordinary characteristic is specific people; rather, resilience is commonplace and normative human resource (Masten, 2001). Runswick-Cole and Goodley (2013), explained that resilience, though normally thought to mean a return to normal, in the disability community is more aptly equated with a return to able-bodied function. This may include adaptations in techniques for self-care or by assistive devices.

Hardiness has been determined to be more of a personality characteristic that not every individual possesses. Kobasa (1979) explained hardiness as a strong commitment

to self, and an attitude of vigorousness and determination and internal locus of control. In disability studies, the hardiness scale (developed by Kobasa) only measured a high return to able-bodiedness in individuals with this characteristic (Pengilly & Dowd, 2000). The assumption being that not every individual with acquired disability is capable of a return; whereas, posttraumatic growth is thought to be something any individual with any personality type might experience (Pengilly & Dowd, 2000). Though hardiness is not a personality characteristic of all, posttraumatic growth may be experienced by any personality type.

Rumination is described as recurring cognitive processing that includes the individual trying to make sense of an event and problem solve, perhaps a reminiscence of past events or supports with the anticipation that improvement can and will be made (Martin & Tesser, 1996). Rumination does not always precede growth. In fact, rumination has been considered an adverse effect in individuals should their cognitive processing follow negative patterns (Calhoun, Cann, Tedeschi & McMillan, 2000).

Adversarial growth provided the foundation for posttraumatic growth studies (Calhoun & Tedeschi, 2004). Adversarial growth is considered an adaptive response to trauma, crisis, or life event (Ackroyd et al., 2011). Ackroyd et al. (2011) found that growth only occurred when the individual perceived benefits because of a traumatic life event, ultimately providing perceived control and preparedness for future life events. Adversarial growth begins with a search for meaning within the confines of the traumatic event, and that crisis occurred for a reason (Ackroyd et al., 2011; Calhoun & Tedeschi, 2004). Joseph and Linley (2005) found three main facets of adversarial growth that

correspond with the domains of posttraumatic growth. These include (a) enhanced relationships, (b) improved sense of self, and (c) a change in life philosophy (Joseph & Linley, 2005). Many of the studies that have followed early research using these theoretical foundations used a survey design and the Internet.

Like many cross-sectional designs that use online surveys, this study used this method because it is low cost, has a low propensity for interviewer bias as the surveys are self-administered, are anonymous, and highly accessible to anyone within the target population with access to the Internet (Frankfort-Nachmais & Nachmais, 2008). For individuals with acquired disability, another benefit of online surveys is recognized. Research has shown that the Internet has increased knowledge, services, treatment options, and social exchanges for individuals with a disability (Guo, Bricout, & Huang, 2005; Ritchie & Blanck, 2003). Advances in tactile technology improve the use of computers and the Internet for those with mobility challenges (Bache & Derwent, 2008). Voice recognition software enables people with vision loss to be able to use the Internet, while captioning software allows those with hearing loss to find accessibility through the Internet (Bogart, 2014; Tanis et al., 2012). Smart devices, with Internet accessibility, allow individuals with acquired disability to sense, interpret, hear, and react because of radio-frequency identification, real-time localization, and various embedded sensors (Domingo, 2011). Should individuals lack the means to acquire a computer and access the Internet from home, county and city services within library systems are required by the Americans with Disabilities Act (ADA) and the Association of Specialized and Cooperative Library Agencies (General Services Administration, 2017).

This study has three dependent variables and five independent variables. The dependent variables are the three dimensions of acquired disability. Participants self-identified with one of the three dimensions. Because individuals with acquired disability may have more than one major life challenge and identify with more than one dimension, participants were instructed to choose the dimension that has the greatest impact on their life. For example, individuals with disabilities that result from chronic illness such as chronic fatigue syndrome, fibromyalgia, Meniere's disease, or illnesses that include progressive deterioration of sensory organs, often have comorbid mental health diagnosis of depression or anxiety (Nierenberg et al., 2016). Yu, Rawtaer, Mahendran, Kua, and Feng (2017) found the degree of neuropathy or nerve damage in adults with difficulty grasping and performing fine motor skill tasks was correlated with how debilitating depression or anxiety were for the individual. Individuals with spinal cord injury are frequently diagnosed with depression (Perkes, Bowman, & Penkala, 2014). Participants of the study self-identified with the dimension that has the greater effect of disrupting normal participation in life.

The WHO (2001), identified the first dimension of acquire disability as *body functions*. This is defined as "the physiological function of body systems (including psychological functions)" (WHO, 2001, p. 65). Impairments in the body function dimension are "problems in body function or structure as a significant deviation or loss" (WHO, 2001, p. 65). This dimension includes mental functions such as consciousness, level of fatigue, memory deficits, and language and mathematical computation challenges (WHO, 2001). This dimension of body function also includes challenges in the function

of the sensory organs: seeing, hearing, tasting, smelling, and the sense of touch or sensation of pain (WHO, 2001). Body functions include challenges in producing sound and speech, prevalent is communication disorders (WHO, 2001). This dimension includes individuals who have impairment in body functions such as the cardiovascular system, haematological system, immunological system, and respiratory system (WHO, 2001). Finally, this dimension of acquired disability includes digestive body functions, functions for movement such as joints, bones, reflexes, and muscles, and functions of the skin (WHO, 2001).

The second dimension of acquired disability is that of *body structures.* This is defined by the WHO (2001) as "anatomical parts of the body such as organs, limbs, and their components" (p. 111). Impairments are "problems in body function or structure as a significant deviations or loss" (WHO, 2001, p. 111). This dimension includes structures of the nervous system including the brain and spinal cord (WHO, 2001). It also includes the body structures of the eye, ear, and related structures that may have been damaged in accidents or treatment of disease (WHO, 2001). For example, the removal of an acoustic neuroma, may damage the inner and outer ear and include removal of some or all those structures, thereby hindering normal function. The body structure dimension also includes structures of the nose, mouth, larynx, and other speech related structures (WHO, 2001). The dimension also includes the structures of the cardiovascular and respiratory systems, such as the removal of a lung as the result of cancer (WHO, 2001). Finally, body structures, such as the head, neck, shoulders, upper and lower extremities, and other musculoskeletal structures important in movement are also included in this dimension

(WHO, 2001). An individual who lost a limb and uses assistive devices or prosthetic to provide ambulatory norms may self-identify with this dimension of acquired disability.

The final dimension of acquired disability includes activities and participation. There are four important definitions included in this dimension. The first, activity, is defined by the WHO (2001) as "the execution of a task or action by an individual" (p. 121). Participation is the involvement in any life situation or life events (WHO, 2001). Limitations in the former are "difficulties and individual may have in executing activities" (WHO, 2001, p. 121), and the latter are "problems an individual may experience in involvement in life situations" (WHO, 2001, p. 121). These restrictions and acquired disabilities may include limitations in body function or body structure as well. For this reason, participants will be asked to self-identify with the dimension that has the greatest impact on their life and in normal functioning. This dimension includes purposeful learning and applying knowledge, carrying out self-care tasks, being able to communicate, the ability to move one's body in transferring from one place to another, changing body positions, carrying items, moving, and manipulating objects (WHO, 2001). This dimension also includes being able to maintain and participate in domestic life including working and earning a living, finding and maintaining a place to live, caring for clothing, household items, and assisting others as needed (WHO, 2001). These three dimensions of acquired disability are the dependent variables of the study.

The independent variables are the five domains of posttraumatic growth. Numerous studies have verified the validity of five separate domains in measuring posttraumatic growth in individuals (Baker, Kelly, Calhoun, Cann, & Tedeschi, 2008;

Calhoun, Cann, & Tedeschi, 2010; Calhoun & Tedeschi, 2013, 2014; Shakespeare-Finch, Martinek, Tedeschi, & Calhoun, 2013; Taku, Cann, Calhoun, & Tedeschi, 2008). The first domain is growth or positive change in personal strength (Calhoun & Tedeschi, 2014). A major life crisis, such as acquired disability, may provide the individual with an "increased sense that one has been tested, weighed in the balance, and found to be a person who has survived the worst, suggesting that one is indeed quite strong" (Calhoun & Tedeschi, 2014, p. 5). An individual is tested and tried by the emergence of an acquired disability and not only survives but also considers themselves stronger for the experience (Calhoun & Tedeschi, 2014).

The second domain of posttraumatic growth is new possibilities (Calhoun & Tedeschi, 2014). As the result of an acquired disability, the participant may have experienced growth in new interests and activities, perhaps even now pursuing new goals (Aspinwall & Tedeschi, 2010). Cann et al., (2010) found that these new possibilities would not have been likely had the individual not experience a major crisis or change in their current life's path. Individuals who experience PTG report the traumatic event became the impetus for discovering new interests, enjoying new activities, and the pursuit of new goals (Cann et al., 2010).

The third independent variable and domain of posttraumatic growth is positive change in relating to others (Calhoun & Tedeschi, 2014). Many who experience a traumatic event found a change in how they view other human beings, particularly those who have experienced similar crisis (Tedeschi & Blevins, 2015). Many individuals newly

diagnosed with a disability find that previous friendships and support systems have dissolved or that new friends and support systems were created.

The fourth and fifth domains of posttraumatic growth are a greater appreciation for life and a positive change in spirituality (Calhoun & Tedeschi, 2014). Individuals with an acquired disability often discover a change in their priorities (Tedeschi, Calhoun, & Engdahl, 2001). They may temporarily struggle with what is important and discover a newfound appreciation for life. They may, for example, find they are no longer seeking to acquire tangible goods, and instead invest themselves in making a difference (Tedeschi, Calhoun, & Engdahl, 2001). An acquired disability may cause individuals to reevaluate what they choose to focus on and what types of things they invest themselves in each day. Their focus may be to make the most of their lives after diagnosis, leaving a legacy that parallels their new appreciation for life in general (Triplett, Tedeschi, Cann, Calhoun, & Reeve, 2012). Individuals may feel as if they were given a second chance (having survived) and now fully embrace life and all it has to offer.

According to Calhoun and Tedeschi (2014), existential growth and positive changes in spiritual beliefs to some seem the most significant area of growth after trauma. When this kind of growth is experienced may vary on the type of crisis the individual experienced, their developmental blueprint, and their personal beliefs. This may mean changes and growth in personal philosophies and a search for the answers to fundamental existential questions (Taku, Cann, Tedeschi, & Calhoun, 2015; Tedeschi & Calhoun, 2006;). Individuals with acquired disability may grapple with questions such as, why the event occurred and why it happened to them and not someone else.

Definitions and Assumptions

The operational definitions for this study include (a) acquired disability, (b) disability, and (c) posttraumatic growth.

Acquired disability: The result of accident, illness or disease, working conditions, or stress and include limitations in normal function of hearing, vision, movement (gross and fine motor), thinking and memory, learning, communication, mental health, and social relationships (CDCP, 2014a). All restrictions occur after birth (Vash & Crewe, 2004). This term will be differentiated by three separate dimensions of acquired disability, already described, that include body function, body structure, and activities and participation.

Disability: Limitations in normal function of sensory organs, body structures, developmental functions, and may be congenital or acquired (CDCP, 2014a). These restrictions may be visible and easy to identify, or invisible and not obvious without disclosure.

Posttraumatic growth: A positive change in the life of an individual who has survived a traumatic life event or major life crisis (Calhoun & Tedeschi, 2014). This term was measured by the Posttraumatic Growth Inventory by the participants in the study and indicate growth in one or more of five domains after acquired disability.

Several assumptions were made regarding this online, cross-sectional survey design study. The first was that participants were honest in responding to the screening questions, thus meeting eligibility requirements including being at least 18 years of age and 1 year postdiagnosis of an acquired disability. A second assumption was that the

individual responding to questions, including self-administering the Posttraumatic Growth Inventory (PTGI), was the person who has the acquired disability. Although some participants may need assistance to access, read, and respond to the survey questions, a third assumption was that any support assistant present assisted the individual with acquired disability in such a way that the participant's response was recorded and not that of the caregiver. A fourth and final assumption was that participants responding to the PTGI Likert scale responded by referring to the experience of a crisis or trauma as the result of an acquired disability.

Limitations of the Study and Validity Concerns

My study was a cross-sectional, quantitative study using a convenience sample of those who responded to the invitation to participate through word-of-mouth referrals, social media venues, and online support groups. The study was given at one time during the data collection period July 8, 2017, through October 2, 2017. Causality between the variables cannot be determined. The PTGI is a Likert-scale tool which means quantifiable data was collected; however, the opportunity for participants to provide in-depth responses or explanations for why they chose a scaled response is not possible.

Data collection for the study was accomplished through invitations, delivery, and collection of responses via the Internet, a limitation was that participants who meet the criteria yet do not have access to a computer and the Internet were not included. An additional limitation was that participants knew the study was measuring posttraumatic growth. Respondents may have been influenced by social desirability and responded in a

way that looks at the acquired disability in an optimistic way even though there may be negative results postdiagnosis.

The validity of self-reported growth is not as strong as posttraumatic growth studies that use observation reports by participant support individuals such as close family members, significant others, or close friends (Calhoun & Tedeschi, 2004). Internal validity is limited because of the online survey design of the study (Frankfort-Nachmais & Nachmais, 2008). Content validity is strong as the PTGI has been tested repeatedly that the instrument measures what it is meant to measure—posttraumatic growth (Taku et al, 2008; Tedeschi & Blevins, 2015;).

Additional internal threats to validity due to the participant pool from the acquired disability population included the passage of time between onset of disability and data collection. A screening question will be used to ensure the individual is at least 1 year postdiagnosis. Those individuals newer to acquired disability may lack coping mechanisms and a means of support compared to those who have lived with acquired disability for a longer period. Another acquired disability specific validity issue includes the often progressive aspect of disabilities that worsen over the lifespan of the individual. Some individuals may find that they are once again adapting to a worsened condition or find they are going through the grief process again after new normal presents (Kanel, 2007). Finally, posttraumatic growth studies based on populations with acquired disability may have internal threats to validity based on the diffusion of treatment based on demographics (Morrill et al., 2008). Some may have greater access to medical

services, rehabilitation programs, and support groups, making it easier for the individual to both cope and adapt thus, influencing self-perceived growth.

Significance of the Study

The study is significant to populations that include individuals with acquired disability, their caregivers and families, and medical and mental health support professionals. The analysis provided information in which specific dimensions of acquired disability are more likely to score high or low in various domains of posttraumatic growth, this information may influence the planning and availability of aftercare programs designed to foster those areas of growth.

Practical Contributions of the Study for Educational Settings

College campuses across the nation are emphasizing inclusion of diversity groups (Bines & Lei, 2011). Individuals with disability make up the largest diversity group, as it spans all ethnic, gender, age, and religious groups (Olkin, 2002; United States Department of Labor, 2017). College campuses are encouraged to provide necessary support means through student groups, support groups, counseling, and awareness campaigns (Polat, 2011). Information from this study might shape support groups and the focus they choose to take to educate and advocate for students, faculty, and staff with disability. Should individuals recognize posttraumatic growth possibilities, this may impact quality of life and long-term successful coping with a diagnosis, making posttraumatic growth an expectation instead of something to hope for by those with acquired disability.

Summary

This chapter reviewed the foundations of posttraumatic growth studies including the theoretical background, and nature of the study. The problem statement, purpose of the study, and research questions were detailed for the study, building on available information about the significant gap in research. Detailed definitions are provided throughout the chapter. The chapter detailed numerous assumptions for the study. Limitations and validity concerns were addressed. Finally, the significance of the study was provided, and specifics for the educational setting.

The following chapter will cover the literature search strategy. Chapter 2 will also include a detailed provision of literature that supports the various theoretical frameworks and foundations to posttraumatic growth. Literature related to the key variables of the study will also be provided.

Chapter 2: Literature Review

Introduction

In the United States, 24.4% of the population is over the age of 18 has a disability (CDCP, 2017a). While 17% of those individuals have a congenital condition, the remaining have acquired disabilities (CDCP, 2017a). The CDCP (2017b) specified acquired disabilities as a limitation in normal function in sensory functions such as vision, hearing, and movement; in developmental functions such as thinking, remembering, and learning; and in communication and social functions such as speaking, mental health, and social relationships. Acquired disabilities often require the individual to make significant changes in the way day-to-day activities are accomplished.

Individuals with acquired disabilities have found that living with their condition may produce limitations in opportunities, growth, and quality of life. These limitations may also produce posttraumatic stress (Dekel & Mandl, 2011). However, individuals with acquired disability may experience, and can experience, positive psychological growth or posttraumatic growth (Calhoun & Tedeschi, 2014). Research in posttraumatic growth suggests five domains that include (a) personal strength, (b) new possibilities, (c) relating to others, (d) appreciation of life, and (e) spiritual change (Calhoun & Tedeschi, 2014). Individuals with acquired disability, like others who cope well with trauma, are just as likely to experience posttraumatic growth (Day, 2013; Day & Wadey, 2016). Posttraumatic growth has been found in individuals with different types of acquired disability and evidence suggests posttraumatic growth can be experienced by individuals regardless of the severity of a newly acquired diagnosis (Day, 2013).

The WHO (2001) divides acquired disability into three dimensions: (a) an impairment in body functions; physiological and psychological functions of the body, (b) an impairment in body structures; anatomical specifics such as organs and limbs, and (c) restrictions in activities and participation; the execution of tasks and involvement in life events. Limited research exists on the association of these dimensions of acquired disability with posttraumatic growth. The multivariate profile of posttraumatic growth domain scores that discriminates the dimensions of acquired disability is currently unknown.

The purpose of this study was to (a) identify the extent to which those with acquired disability experience posttraumatic growth, (b) determine if specific dimensions of acquired disability are more likely to score high in specific domains of posttraumatic growth, and (c) determine if specific dimensions of acquired disability are more likely to score low in specific domains of posttraumatic growth. The findings of this study may help aftercare and social support programs, medical and mental health professionals, rehabilitation specialists, support groups, educational psychologists, and disability support personnel on college campuses to plan and create activities and supports for individuals with acquired disability. By identifying specific dimensions of acquired disability that are known to score low in specific domains of posttraumatic growth, programs can be made available to strengthen those supports to maximize posttraumatic growth potential. Once an acquired disability and diagnosis are made, individuals and support professionals may purposefully seek involvement in activities that highlight posttraumatic growth domains that best facilitate posttraumatic growth.

Although researchers have discussed the adaptation process, the role of hope (Bogart, 2014; Dorsett, 2010), and in life satisfaction (Hernandez et al. 2014), no associations have been made between the domains of posttraumatic growth and the dimensions of acquired disability. There is, however, limited posttraumatic growth research in very specific diseases or injuries. This research includes serious medical conditions such as cancer (Cormio et al. 2014; Coroiu, Körner, Burke, Meterissian, & Sabiston, 2016; Morris & Shakespeare-Finch, 2011; Yi, Zebrack, Kim, & Cousino, 2015), spinal cord injuries (Davis & Novoa, 2013; Pollard & Kennedy, 2007), stroke (Kuenemund, Zwick, Rief, & Exner, 2016), and brain injury (Powell, Gilson, & Collin, 2012; Rogan, Fortune, & Prentice, 2013). Although these posttraumatic growth studies provide analysis on specific diagnoses or distinct populations, a gap exists in literature that researches posttraumatic growth in acquired disability dimensions outlined by the International Classification of Functioning, Disability and Health (ICF) (WHO, 2001).

This chapter details the literature search strategy, the theoretical foundations related to the study, the conceptual framework of posttraumatic growth, and the literature related to key variables used in the study. Additional review of related topics including adversarial growth, resilience, and hardiness will be provided.

Literature Search Strategy

A comprehensive study of available research for posttraumatic growth was initiated in 2010, prior to implementing the proposal for this study. Using the databases of PsychINFO, PsychARTICLES, PubMed, and SocINDEX, keyword searches included *posttraumatic growth (PTG), resilience, hardiness, adventitious disability, acquired*

disability, locus of control, posttraumatic growth inventory (PTGI), quality of life, satisfaction of life, self-efficacy, coping, resilience, adversarial growth, rumination, and *adaptation*. The articles and resources were retrieved from the library services of the University of Phoenix, Anne Arundel Community College, and Walden University. Previous literature and studies are limited to those published in the English language, and articles were published within the last five to six years apart from works supporting the history and foundational works related to posttraumatic growth. A diverse selection of scholarly, peer-reviewed journals was used in the review of literature covering the concepts, associations, and variables related to this study. In addition to these studies, several dissertations on posttraumatic growth were retrieved as supportive evidence of supporting theories (Hand, 2003; Pachler, 2013), conceptual frameworks (Michna, 2013), and key variables (Cesar, 2014).

Theoretical Foundation

Acquired disability may produce psychological distress or posttraumatic stress disorder (PTSD) and often does at the initial onset (Dekel & Mandl, 2011; Thomas & Savoy, 2014). In this study, the traumatic event is that of an acquired disability as the result of experiencing a serious injury or onset of a chronic illness in which a permanent change in overall health and bodily function alters the individual's ability to experience and navigate life in the same way prior to the acquired disability. Trauma occurs when an individual (a) is exposed to the threat of death, serious injury or illness, (b) experiences intrusive symptoms that may include psychological distress, recurring dreams, memories, or physiological reactions to cues that remind the individual of the trauma, (c) is avoiding

external reminders and self-imposes isolation, (d) experiences negative changes in thought process and mood, (e) experiences negative changes in behavior, and (f) develops impairment in social skills and ability to continue occupational roles (American Psychiatric Association, DSM-V-TM , 2013). Not all individuals who experience a traumatic event develop PTSD. In fact, many individuals experience growth. The theoretical lens for posttraumatic growth is that a traumatic event or life crisis may produce positive change and personal growth (Calhoun & Tedeschi, 2014). In this study, individuals who acquire a disability may experience a measurable, positive change. Theories that precede posttraumatic growth include resilience, which is defined as, "good outcomes in spite of serious threats to adaptation or development" (Masten, 2001, p. 228). A second theory, that of hardiness, is defined as characteristics of an individual who believes they are capable of controlling events, recognize that stressful events could be meaningful and interesting, and believes stressful events create an opportunity for growth (Pengilly & Dowd, 2000). Adversarial growth is a third theory that precedes that of posttraumatic growth. Adversarial growth is often used synonymously with posttraumatic growth, positive adjustment, positive change, thriving, and stress-related growth. It is defined as the human capacity for growth through adverse circumstances and events (Linley & Joseph, 2005). Together, these pioneer theories have shaped that of posttraumatic growth (McCarthy, 2013) and social scientists, psychologists, counselors, and researchers in various traditional settings of clinical practice and scientific investigation have benefited from the evolution ("What is posttraumatic growth," n.d.).

Resilience, hardiness, and adversarial growth are foundational theories to PTG and to my study.

Posttraumatic Growth and Impairment in Normal Body Function

The first dimension of acquired disability identified by the ICF is impairment in body functions (WHO, 2001). This includes reduced cognitive function, sensory function, voice and speech function, and pain (WHO, 2001). This dimension also includes other bodily functions such as cardiovascular, respiratory, immunological, digestive, endocrine, reproductive, and functions of the skin (WHO, 2001). The first dimension also includes neuromusculoskeletal and movement-related functions such as muscles and motor reflex (WHO, 2001). One of the more widely studied correlations between posttraumatic growth and a significant diagnosis is that of mobility challenges (Bogart, 2014). Impairment in mobility may be the result of damaged body function due to acquired disease such as multiple sclerosis, arthritis, or other chronic disease. Neurological damage and mobility impairment may also be caused by accident or short-term illness or episode such as stroke or seizure (Horn et al., 2016). These challenges may limit an individual's ability to perform both gross and fine-motor activities (Barskova & Oesterreich, 2009). One commonly studied group of individuals with mobility issues are those acquired by a traumatic accident such as spinal cord injury, traumatic brain injury, severe fractures (lower extremity intraarticular fracture), and burn injuries (Hernandez et al., 2014).

Individuals with significant mobility challenges have been participants in research studies that correlate the mobility challenge to poor life satisfaction. Decreased

satisfaction in life may be due to difficulties in accessing care and transportation, unemployment, and unstable living arrangements because of changes in relationships and support (Hernandez et al., 2014). In a longitudinal study on traumatic injury that included spinal cord injury, traumatic brain injury, severe fractures, and burns, Hernandez et al. (2014) used descriptive statistics and hierarchical linear modeling with 662 participants at 12, 24, 48, and 60-months after being discharged from an acute care hospital. Each of the four diagnoses, spinal cord injuries, traumatic brain injury, severe fractures, and burns, impaired mobility to some degree (Hernandez et al., 2014). Changes in life satisfaction were tracked using self-report measures. The variables were obtained using various scales that included (a) the Functional Independence Measure (FIM), which tracks cognitive and motor impairments, (b) the Abbreviated Injury Scale, which traces injury severity, (c) the Family Satisfaction Scale, which assesses family and support satisfaction, and (d) the Life Satisfaction Index-A, used to measure psychological well-being and interest in life, goals, and mood (Hernandez et al. 2014). The study found that those with lower functional impairment and higher family satisfaction were significantly overall more satisfied with life than those who had fewer supports (Hernandez et al., 2014. The only life satisfaction variable measured in this study like that of a posttraumatic growth domain referred to positive changes in relationships (Hernandez et al., 2014).

Another longitudinal study focusing on spinal cord injury alone, reviewed 37 participant's emotional growth, psychological growth, and coping strategies over ten years using the Beck depression scale, State Anxiety Inventory, the COPE Scale, the FIM, and Social Support Inventory (Pollard & Kennedy, 2007). Pollard and Kennedy

(2007) found little change in depression and anxiety after 10 years. Coping strategies, tracked at 12-weeks and 10-years postinjury, remained the same (Pollard & Kennedy, 2007). However, participants with higher posttraumatic psychological growth were those who had specific coping strategies (Pollard & Kennedy, 2007). These included an acceptance of the diagnosis, a refusal to use drugs and alcohol, and a plan to mitigate the acquired disability using known accessibility options (Pollard & Kennedy, 2007). The higher growth measures of those with high levels of coping strategies are similar to posttraumatic growth domains of "awareness of new opportunities" and "an increased sense of one's own strength" ("What is posttraumatic growth," n.d., para. 1). These quantitative PTG studies added to the scholarly resources available for PTG, though specific to spinal cord injuries.

Davis and Novoa (2013) conducted a qualitative study on spinal cord injury participants, using three interviews over a 13-month postinjury timeline. The research focus was to find correlations to posttraumatic growth and significant challenges in mobility (Davis & Novoa, 2013). Davis and Novoa invited 67 participants, of which 75% were considered extremely challenged in mobility either acquiring tetraplegia or paraplegia diagnoses. Through targeted interview questions, Davis and Novoa found that those who focused on developing meaningful activities found the highest posttraumatic growth levels. In addition to Davis and Novoa's study, several researchers studied specific types of individuals with spinal cord injury.

These studies include Crawford, Gayman, and Tracey (2014), whom examined posttraumatic growth in Canadian and American ParaSport athletes. The results of this

study found that sports and all that encompasses being a part of a team—competing and being coachable—may provide psychological, emotional, and physical benefits (Crawford et al. 2014). Two qualitative studies found similar benefits in athletes with acquired disability (Day, 2013; Day & Wadey, 2016).

Other specific acquired disabilities that result in mobility challenges include individuals who are stroke or acquired brain injury (ABI) survivors. Mack et al. (2015) conducted a study to examine both factorial and discriminant validity in stroke patients in Germany. Mack et al. used an analysis approach similar to my study, using the Posttraumatic Growth Inventory-German scale. Findings verified the PTGI as a valid tool in stroke research and posttraumatic growth (Mack et al., 2015). In the Mack et al. study, mobility challenges were considered minor, and the focus remained on the primary challenge of cognitive and emotional deficits. A qualitative study by Kuenemund et al. (2016) found that for 26 stroke survivors, the highest scored domains of posttraumatic growth included an improved appreciation for life and relationships satisfaction. Grace, Kinsella, Muldoon, and Fortune (2015), conducted a systematic review and meta-analysis of 744 studies on posttraumatic growth and acquired brain injury. Eight studies were chosen for detailed examination. Posttraumatic growth domain variables were correlated with specific variables that included (a) employment, (b) education, (c) relationships, (d) age of acquired brain injury survivor, (e) time since the acquired brain injury, (f) level of depression, and (g) subjective beliefs about personal change (Grace et al., 2015). These studies included participants with mobility challenges, but the primary acquired disability appeared to be cognitive issues.

Research on PTG and reduced cognitive functioning is absent from the databases, except for that specifically associated with spinal cord injury, acquired brain injury, and traumatic brain injury. Numerous studies by researchers investigating improved cognitive functioning from these acquired disabilities in conjunction with treatment options exist, such as computer training for those with aphasia (De Luca et al. 2014), and aerobic exercise (Kegel, Dux, & Macko, 2014). Collicutt and Linley (2006) found PTG in traumatic brain injury survivors but acknowledged that cognitive function challenges were secondary to significant physical disabilities. Although cognitive functioning is a considerable challenge, limited research exists with the exception of those who have these challenges as the result of spinal cord injury and acquired or traumatic brain injury.

A significant gap exists in the literature for PTG and vision loss. Many studies focus on specific issues regarding the age of the person with vision loss and familial support (Cimarolli, Boerner, Reinhardt, and Horowitz, 2013), but not on PTG or positive psychological growth of any kind. Two studies found resilience in congenital deafness with supportive family structures (Ahlert & Greeff, 2012; Kushalnagar et al. 2014); however, neither used domain variables of PTG. Additional studies for those with hearing loss focused on the impact of coping mechanisms such as virtual supports (Shoham & Heber, 2012) and cochlear implants (Olze et al. 2012). Neither focused on the impact of coping mechanisms nor psychological growth. Olze's et al. (2012) study found an improvement in the individual's perception of quality of life, but only for those whose cochlear implant surgery produced meaningful gain in hearing. Those with continued significant hearing issues showed no such improvement. With an acquired hearing loss

diagnosis, individuals may also experience vestibular problems and thus, mobility challenges (Olze et al., 2012). Specific studies on these type of sensory challenges is absent in the available research and additional research is needed in assessing those with pain disorders.

Chronic pain is a type of acquired disability and is often paired with accidents or other physically traumatic events. Min et al. (2014) used a regression model to find that resilience mitigates the negative effects of pain and may produce greater PTG in those who have survived accidents or other traumatic physical events. Other studies on pain were not focused on acquired and permanent disabilities, including (a) labor and delivery pain (Garthus-Niegel, Knoph, Von Soest, Nielsen, & Eberhard-Gran, 2014) and (b) pain associated with cancer treatment during chemotherapy (Arpawong, Richeimer, Weinstein, Eighamrawy, & Milam, 2013). Numerous individuals who experience neurological weakness (touch) from acquired brain injury or stroke may also have reduced function in smell and taste (Bogart, 2014; Hernandez et al., 2014). Traumatic brain injury may cause similar challenges. In both types of acquired disability, neurological issues and the sense of touch are considered secondary to mobility challenges covered previously (Bogart, 2014). Chronic pain and reduced sensory functions such as smell, taste, and touch are common residual challenges from brain injury and stroke (Bogart, 2014; Hernandez et al., 2014).

Posttraumatic Growth and Reduced Function in Body Structures

The second dimension of acquired disability in the ICF, impairment in body structures, includes: (a) the structures of the eyes and ears, (b) structures to produce

speech, (c) structures that provide cardiovascular, respiratory, immunological, digestive, endocrine, and reproductive functions, (d) structures related to head/neck movement, (e) structures controlling shoulder movement, (f) structures controlling upper/lower extremity movements, and (g) structures controlling the pelvic region (WHO, 2001). A common theme in research for this dimension is PTG research and correlations to veteran limb loss and phantom limb pain (Bray et al., 2016).

Amputation is an acquired disability. Current research on limb loss and phantom limb pain is often the focus of research using military populations (Bray et al., 2016; Tuncay & Musabak, 2015). One such example is a study by Tuncay and Musabak (2015) of 106 military veterans with lower-limb amputations. In the study, hierarchical regression analysis found that participants with problem-focused coping strategies were more likely to experience PTG (Tuncay & Musabak, 2015). Problem-based coping strategies are described as the belief that the individual can affect, influence, or manage the situation caused by their current condition and challenges (Tuncay & Musabak, 2015). Tuncay and Musabak (2015) assert this enables the individual to maintain quality of life. Using the COPE Scale, PTGI, and a short demographic questionnaire, Tuncay and Musabak (2015) found that individuals using emotion-focused coping were less likely to experience PTG than those who used problem-focused coping.

Other amputee PTG research, that included both civilians and veterans, found that veterans with limb loss were less likely to experience PTG than civilians because veterans are less likely to have access to and use support groups (Stutts & Stanaland, 2016). Wang, Wang, and Liu (2011) conducted a PTG on amputees who survived motor

vehicle accidents. Wang's et al., phenomenological study used semi-structured interviews for six participants and found evidence of PTG, however the PTGI was not used. Instead, the qualitative study used an interview analysis with themes that matched the domains of PTG (Wang et al., 2011). These themes included: (a) finding meaning, (b) discovering a new perception of self, (c) discovering connection, and (d) identifying a positive life philosophy (Wang et al., 2011). Two weaknesses of the study included: (a) the primary scale used to measure PTG, the PTGI, was not used, and (b) the patients interviewed were still in the hospital (Wang et al., 2011). Posttraumatic growth is more accurately measured when considerable time has passed to allow for adjustment and acceptance (Calhoun & Tedeschi, 2014; King & Raspin, 2004; Tomich & Helgeson, 2004).

Few PTG studies exist for specific structural injuries to the eyes or ears. Vision loss and hearing loss are common acquired disabilities. Research suggests these conditions are the result of body functions and disease—the first ICF dimension of acquired disability ("Causes of Deafblindness", n.d.; "Leading Causes of Blindness", 2008; "Causes of Hearing Loss in Adults", n.d.). One type of structural hearing loss, conductive hearing loss, may cause temporary or permanent hearing loss through damage to the inner ear bones, perforated eardrum, or tumors that have been removed ("Conductive Hearing Loss", 2017). The conductive hearing loss research is void of any correlations to psychological growth or PTG; instead, these studies reviewed data that show improved hearing for those who have assistive listening devices (Marino, Linton, Elkelboom, Statham, & Rajan, 2013), and inner-ear implants (Reinfeldt, Hakansson, Taghavi, Jansson, & Eeg-Olofsson, 2015).

Posttraumatic Growth and Activity/Participation Restrictions

The International Classification of Functioning, Disability and Health (ICF) by the WHO (2001), details the third dimension, activity and participation restrictions, as the following (a) learning and applying knowledge, (b) communicating (giving and receiving spoken or nonverbal messages), (c) changing and maintaining body position, (d) carrying, moving, and handling objects, (e) walking and moving, (f) moving using transportation, (g) self-care, (h) domestic life tasks (acquiring a place to live, preparing meals, and housework), and (i) interpersonal interactions and relationships (in education or school, work, and community). Many restrictions in learning, applying knowledge, communication, mobility tasks, and self-care are developmental disabilities and present at birth ("Facts About Developmental Disabilities", n.d.). These restrictions may also be the result of acquired disability, however. Many are comorbid diagnoses of bodily function disabilities such as spinal cord injury (Davis & Novoa, 2013; Hernandez et al. 2014; Pollard & Kennedy, 2007) and neurological damage (Barskova & Oesterreich, 2009). Individuals who survive spinal cord injury may also have challenges in pincer grasp strength (Velstra et al. 2015), making it difficult to pick up items and hold them. Individuals with spinal cord injury may also have difficulty with daily living activities such as self-care, household tasks, or employment (Wirz & Dietz, 2015). Restrictions tend to worsen with age (Barskova & Oesterreich, 2009; Wirz & Dietz, 2015). Not all restrictions that impact daily activities and participation are physical. Some of these challenges are the result of cognitive impairment from injury.

Survivors of traumatic brain injury may be unable to make decisions and use reflexes to drive safely (Cullen, Krakowski, & Taggart, 2014). Traumatic brain injury may impact a survivor's ability to handle finances wisely, such as creating budgets and paying bills (Bottari, Gosselin, Guillemette, Lamoureux, & Ptito, 2011). Relationships and communication may also be impacted by spinal cord injury and traumatic brain injury, influencing intimate relationships, friendships, and employment (Godwin, Chappell, & Kreutzer, 2014). The survivor is unable to initiate self-control, reason, or communicate needs (Godwin et al., 2014; Knox, Douglas, & Bigby, 2015). Survivors of traumatic brain injury may also be physically aggressive, have inappropriate sexual behavior, or lack the ability to filter communication (Hammond, Davis, Cook, Philbrick, & Hirsch, 2012; James & Young, 2013). These issues are behaviors that may restrict participation in normal life situations. The same restrictions may apply to survivors of stroke and acquired brain injury (Kitzmuller &Ervik, 2015; Pringle, Drummond, & McLafferty, 2013). Many of these studies provide data and analysis on the impact of acquired disabilities on daily life, specifically spinal cord injury, traumatic brain injury and acquired brain injury (Kitzmuller &Ervik, 2015; Pringle, Drummond, & McLafferty, 2013). The studies do not measure positive psychological growth or PTG (Kitzmuller &Ervik, 2015; Pringle, Drummond, & McLafferty, 2013). The impairment of these diagnoses is the focus of these researchers, but potential for good outcomes seem to be ignored. My study will use the theory of PTG and a discriminant profile on the WHO's dimensions of acquired disability on the domains of posttraumatic growth.

Rationale for Posttraumatic Growth and Related Theories

The purpose of my study is to identify the extent of PTG for those within the three dimensions of acquired disability provided by the WHO (2001) in the ICF. These include: (a) an impairment in body functions, (b) an impairment in body structures, and (c) activities and participation restrictions (WHO, 2001). The findings of my study may assist disability support personnel at colleges, aftercare and social support programs, rehabilitation professionals, peer-support programs, and educational psychologists, to design and implement activities and supports for individuals with acquired disabilities. The domains of PTG include: (a) personal strength, (b) new possibilities, (c) relating to others, (d) appreciation of life, and (e) spiritual change (Calhoun & Tedeschi, 2014). Programs designed to improve one or more of these domains may be possible should identification of lower scores of specific dimensions of acquired disability be found using the PTGI. Once an individual begins the rehabilitation and recovery process of an acquired disability and subsequent diagnoses, purposeful involvement in these aftercare programs will help maximize PTG potential.

The experience of suffering and coping with a traumatic event is common and most individuals will experience it in their lifetime (Calhoun & Tedeschi, 2014). However, people with new restrictions and impairment, may find life more challenging than ever before. The theory of PTG is now widely accepted, as is the process of trauma to mindfulness to meaning (Tedeschi & Blevins, 2015). Tedeschi, Calhoun, and Groleau (2015) emphasized how PTG can be used to support individuals who have been faced with a major life event such as acquired disability:

> The changes that life crises produce are experiential, not merely intellectual, and that is what can make them so powerful. This is the same for posttraumatic growth—there is a compelling affective or experiential flavor to it that is important for the clinician to honor. Therefore, we see the clinician's role as often subtle in this facilitation. The clinician must be well attuned to the client when the client may be in the process of reconstructing schemas, thinking dialectically, recognizing paradox, and generating a revised life narrative. (p. 509)

The theory of PTG and the use of the PTGI scale then, allow both professionals and the individuals they support, to measure and discern how well or how poorly adjustment has been achieved after a life crisis. The individuals who experience PTG after crisis, life may be lived in a more meaningful way (Calhoun & Tedeschi, 2014; Groleau, Calhoun, Cann, & Tedeschi, 2012; Lindstrom, Cann, Calhoun, & Tedeschi, 2011).

Is Acquired Disability a Life Crisis?

Like any type of loss, acquired disability may leave the individual reeling from the restrictions and challenges they now face. Hernandez et al. (2014) explained that, "Life satisfaction is a critical, vital component of quality of life among persons who live with chronic and debilitating injuries" (p. 183). A positive adjustment after this type of life crisis may not be a permanent adjustment (Hernandez, 2014; Morrill, et al., 2008). Many who live with acquired disability learn to adjust and thrive at the level of their new normal, only to experience progressive and debilitating changes over time. Individuals diagnosed with Multiple Sclerosis, for example, may have few challenges and restrictions if diagnosed early. Over time, the lesions spread, making challenges and restrictions more

apparent (Giorgio et al. 2013). As Multiple Sclerosis progresses, numbness may occur in the extremities, vision may deteriorate, tremors, slurred speech, extreme fatigue, and dizziness may occur, and problems with bladder and bowel function may become life-changing challenges for the individual ("Symptoms and causes", n.d.). Acquired disability is widely accepted as a type of life trauma (Brault, 2012; LaPlante & Carlson, 1992; Psarra & Kleftaras, 2013). Calhoun and Tedeschi, (2014), purport that trauma growth is any beneficial change for the survivor or individuals supporting the survivor. Experiencing growth after trauma may ultimately increase an individual's reaction to future challenges and create a default response to other crises (Calhoun & Tedeschi, 2004; Durkin & Joseph, 2009; Tedeschi & Blevins, 2015). This study used the PTGI to measure PTG; therefore, it is important to establish the validity of both the theory and scale.

Validity of Posttraumatic Growth and the Posttraumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI) was used in this study to measure PTG in individuals with acquired disability. The PTGI measures the individual's self-reported adjustment to crisis and life trauma in the following areas (a) personal strength, (b) new possibilities, (c) relating to others, (d) appreciation of life, and (e) spiritual change (Calhoun & Tedeschi, 2014). Use of the PTGI is evident in nearly two decades of research and the scale has been translated into numerous languages. This study used the original English version of the PTGI.

Kaler, Erbes, Tedeschi, Arbisis, and Polusny, (2011), found that evidence supports the reliability, factor structure, and concurrent validity of the scale and that

internal consistency for PTG was high. Shakespeare-Finch, Martinek, Tedeschi, and Calhoun (2013) conducted a study to see if the quantitative aspects of the PTGI could be used in a qualitative study. Fourteen individuals (eight males and six females) who had experienced a traumatic event were interviewed fourteen times, each with a variety of demographic qualifiers and trauma type. After completing the PTGI, participants were asked to explain their interpretation of each statement. The results found that the PTGI, with the additional opportunity to narrate responses, provided qualitative research with a valid way to report PTG (Shakespeare-Finch et al. 2013). Taku, Cann, Calhoun, & Tedeschi (2008), used confirmatory factor analysis of the PTGI to determine if the domains of PTG are both separate and meaningful. Taku's et al., analysis used 14 studies with 926 adults completing the PTGI and these individuals had experienced a trauma or life crisis within six months to four years at the time of the research. Using confirmatory factor analysis, the researchers tested the five models, or domains. Taku et al. (2008) stated that "applying confirmatory factor analyses to the Posttraumatic Growth Inventory support the presence of the five separate and meaningful, but correlated factors of posttraumatic growth, and that the Posttraumatic Growth Inventory has high reliability and construct validity of its factor structure" (p. 163).

This study, therefore, is reasonably assured that the PTGI will provide a measure of PTG for surveyed participants with acquired disability. The analysis of the data is instrumental in the determination of what dimensions of acquired disability score high in the domains of PTG, and what domains have lower scores. This data may be used to design support systems, workshops, brochures, and other rehabilitative materials to target

populations within the specific dimensions of acquired disability to encourage PTG. My study, selected theory, and research questions will contribute to PTG research and may provide specific data for persons with acquired disability and their support teams.

Conceptual Framework of Posttraumatic Growth

The conceptual framework of posttraumatic growth, relies on the Posttraumatic Growth Inventory. This instrument provides data and statistics that support and inform PTG research (Tedeschi & Calhoun, 2004). The concept or phenomenon of PTG may be defined as a positive transformative experience in the aftermath of a traumatic event (Calhoun & Tedeschi, 2014). There are five domains of PTG. The first domain is a sense of new opportunities available to the individual after the traumatic event (Calhoun & Tedeschi, 2014). The individual will likely have opportunities to share their life story and experience of the trauma. They may act as a mentor to those who are experiencing the same traumatic event or diagnosis. The second domain is that of changed relationships (Calhoun & Tedeschi, 2014). Individuals who experience a traumatic event may find that they are closer to specific people, perhaps those who have been a significant presence during rehabilitation (Runswick-Cole, & Goodley, 2013). The third domain is an increased sense of personal strength (Calhoun & Tedeschi, 2014). In Calhoun and Tedeschi's collection of personal narratives from individuals who have experienced trauma, they note the statement of a survivor; "If I lived through that, I can face anything" ("What is Posttraumatic Growth?", n.d., para. 2). Individuals who experience PTG describe an improvement in how strong they see themselves and have confidence that they may master future traumatic experiences (Durkin & Joseph, 2009). The fourth

aspect of PTG is a greater appreciation for life overall (Calhoun & Tedeschi, 2014). Joseph and Linley (2005) note that individuals may not experience an immediate appreciation for life after adversity and trauma, but rather after a period of adjustment. The final domain, is a spiritual or religious domain (Calhoun & Tedeschi, 2014). Individuals may experience a change in their spiritual beliefs or a deepening of a current belief system. Individuals who experience PTG explain that an evaluation of what they believe spiritually, enables them to instigate change in schemas and solidify beliefs (O'Rourke, Tallman, & Altmaier, 2008).

Key Statements and Definitions Inherent in PTG and this Study

This quantitative study used the survey method. The PTGI and a short questionnaire designed to gather demographic information was used. Participants were asked to respond to provided questions that enabled them to self-determine a dimension of acquired disability. It was possible that some may have felt their challenges could be defined by more than one dimension. The questionnaire helped participants to determine the dimension with the greatest impact on personal quality of life. Through the Internet, a selection of participants used a random sample and a variety of methods including (a) invitations through social media; Facebook, Twitter, and disability advocacy blogging networks, (b) word-of-mouth referrals from other participants, and (c) invitations to disability non-profit advocacy organizations specific to acquired disabilities. Participants had to be at least 18 years of age, had access to the Internet, able to read English and respond to surveys, and had to be at least 12-months post-diagnosis of a chronic disease

or injury resulting in acquired disability. Acquired disability may mean different things to different people; therefore, a definition was provided to participants.

Acquired disabilities are the result of accident, illness, disease, working conditions, or repetitive physical stress and are a "deviation from the normal range of functioning that places a limit on what a person can do or that imposes special conditions or needs that must be met to allow a person to function in the normal range" ("Disability", n.d., para. 1). Acquired disability may include limitations in normal function of hearing, vision, movement, thinking and remembering, learning, communication, mental health, and social relationships (CDCP, 2014a). Acquired disabilities may be visible and obvious because of assistive devices or tools, or physical abnormalities in body structure (Bogart, 2014). Acquired disabilities may also be considered invisible and only made known to others should the person choose to disclose the information. Vash and Crewe (2004), define acquired disabilities as the potentially limiting functioning of the body due to an accident or illness after birth. Whatever the cause of the acquired disability, trauma as it pertains to this study, can be defined as (a) experiencing or being exposed to actual or threatened death, and (b) experiencing and surviving serious injury, (c) isolating self to avoid external reminders, (d) experiencing negative changes in thought processes, mood, and behavior, and (e) experiencing an impairment in normal functioning (American Psychiatric Association, DSM-V-TM, 2013).

The dimensions of acquired disability have been previously defined. A condensed definition of the first dimension, impairment in body functions, is a deterioration of

physiological and/or psychological functions (WHO, 2001). The second dimension, impairment in body structures, is damage or impaired function of organs, limbs, muscles, joints, and bones (WHO, 2001). The third dimension, restrictions in activities and participation in normal life events, include difficulties and challenges in performing self-care tasks and being independently mobile to experience work and social activities (WHO, 2001).

Within the framework of PTG and in consideration of this study, should a traumatic event lead to acquired disability, the concept of coping would follow. An individual may cope in a positive or negative way. Coping is defined by Tunks and Bellissimo (1988) as "specific behavioral or cognitive actions that are used in order to respond to a problem" (p. 171). In PTG research, numerous foundational theories, models, and approaches are used to form the current framework.

Adversarial Growth Theory. This theory is defined as improvement in personal and psychological well-being following stressful or traumatic events (Joseph & Linley, 2005). The improvement can be facilitated or the process of self-discovery. Individuals who experience hardship, find that the challenge causes benefit (Affleck & Tennen, 1996). Adversarial growth is not easy nor welcome, for it is because of adversity and hardship. Joseph and Williams (2005), explain that adversarial growth is a "conflictual tension between the new trauma-related information and pre-existing assumptive worlds, and how the need to resolve this conflictual tension can serve as the springboard to positive changes" (p. 434).

Cognitive Adaptation Theory. The Cognitive Adaptation Theory is a purposeful search for positive meaning following traumatic events (Taylor, 1983). Taylor (1983) defines it as a personal and internal process; a cognitive purpose of adjustment that follows a significant challenge or hardship. The individual is able to make a connection between a traumatic event or diagnosis, and the importance of learning to adjust in a positive manner. Individuals may ask themselves why this experience happened to them or what they might learn from this experience.

Hardiness Theory. The psychological hardiness theory is described as the ability of an individual who remains healthy after experiencing high levels of stress (Lambert, Lambert, & Yamase, 2003). The theory is said to be made up of commitment, control, and challenge (Kobasa, Maddi, & Courington, 1981). Commonly recognized as a personality type, a hardy person readily accepts commitment, takes responsibility and control, and accepts challenges in a positive manner.

Organismic Theory. Organismic theory postulates that human beings are growth-oriented organisms (Joseph & Linley, 2005). Contingent to the theory is the belief that every individual has the ingrained propensity to know the decisions necessary to pursue his or her best chance of a life with meaning (Joseph & Linley, 2005). The Organismic Valuing Process has become a central concept to the humanistic psychology tradition. Rogers (1964) explained that human beings naturally evaluate and consider ongoing experiences, and by doing so, determine whether those experiences fulfill their needs or if changes should be made. Carl Rogers believed this innate knowing meant clients were best served by allowing them to determine the path to recovery (Rogers,

1964). From this, a non-directional, client-centered therapy was born (Rogers, 1964). External causes of acquired disabilities, ultimately assist the individual in self-actualizing, and determining the best course to take towards a sense of well-being and growth (Kensit, 2000).

Resilience Theory. The Resilience Theory is defined as an individual's successful adaptation to adverse conditions or traumatic event (Greene, Galambos, & Youjung, 2003). Richardson (2002) explains that individuals have the need for "self-esteem, self-worth, freedom, order, and purpose in life" (p. 318). This need is ultimately the impetus for all people to seek personal growth. Individuals with acquired disability may take the initiative to use the parameters of their new normal and create opportunities that inspires personal growth.

These theories were foundational to Tedeschi and Calhoun (1996) and eventually yielded a five-factor approach to PTG. Individuals under crisis or facing a significant traumatic event, may experience positive changes and even growth. Barskova and Oesterreich, (2009) through a systematic review of studies published since 1985 on PTG, found 68 studies specifically focused on PTG and individuals who faced a major health crisis, diagnosis, chronic illness, or acquired disability. Gender, age, education, and ethnicity (demographics), type of disease or disability, personality attributes, psychosocial context characteristics, styles of coping, and health-related responsibility were all found to be predictors of high PTG. Posttraumatic growth was a significant adaptive means toward personal growth (Barskova & Oesterreich, 2009).

Literature Review Related to Discriminant Function Analysis and Dimensions of Acquired Disability

In this study, discriminant function analysis was used on the data harvested from the PTGI, a questionnaire that allowed participants to self-identify with one of the dimensions of acquired disability provided by the WHO (2001). In addition, a questionnaire was provided to collect demographic information. A discriminant function analysis was used to perform a multivariate test of the differences between groups. The dependent variable was dimensions of acquired disability and the independent variable was the PTGI scores within the five domains.

One discriminant function analysis study was found on grief and growth (Gamino, Sewell, Hogan, & Mason, 2009). In the study, 69 adults participated who had experienced the death of a significant loved one. The study used the PTGI, the Hogan Grief Reaction Checklist, the Impact of Event Scale-Revised, the Multidimensional Scale of Perceived Social Support, the Positive and Negative Affect Schedule—Expanded Form, and the Inventory of Social Support. In this qualitative study, semi-structured interviews were given and participants had the opportunity to respond freely to the question, "What does the death of your loved one mean to you?" (Gamino et al. 2009, p. 206). Using discriminant analysis, Gamino et al. (2009) contrasted the clusters (High Grief, High Growth, and Low Impact) found in the interviews and narratives to behavioral indicators provided from the six instruments. Results of the study found those in the high growth cluster also had the most adaptive coping behaviors and were more focused on personal growth because of the loss. Those in the high grief cluster

desperately sought relief and professional help and were in the most distress following the loss. Those in the low impact cluster seemed to take the loss in stride and showed little distress, often only agreeing to short-term anti-depressants if any help was sought at all. Gamino et al. (2009) suggested that grief counselors take note of these findings so that they may suggest specific types of psychological treatment based on the cluster membership.

Discriminant analysis was also used in depression and anxiety studies for individuals with spinal cord injury (Craig et al, 2014), inflammatory bowel disease and colon cancer (Filipović, Filipović, Kerkez, Milinić, and Randelović, 2007), chronic lower-back pain and spine disorders (Linton, Hellsing, Bryngelsson, 2000). Although discriminant analysis was used in each study, no study utilized the PTGI as an instrument. Craig et al. (2014) used variables of demographic information, injury type, self-identified mood states, and levels of pain for spinal cord injury participants. Filipović et al., (2007), used variables from the Hamilton's Depression Rating Inventory, Hamilton's Anxiety Rating Inventory, and Paykel's Stressful Events Rating Scale for 62 irritable bowel syndrome and colon cancer patients for a depression and anxiety analysis. A discriminant function analysis study used variables from a prostate cancer screening anxiety scale in two separate age categories of men (Linder et al., 2010). A large survey study of 2,040 participants with back pain disease and disorder or disability, used discriminant factor analysis to determine how self-identified levels of pain correlated with variables from the Modified Somatic Perception Questionnaire, Uppsala Type-A Scale, Pain Catastrophizing Scale, and Fear-Avoidance Behavior Questionnaire (Linton

et al., 2000). The goal Linton's et al., study was to find how psychosocial factors impact perceived levels of pain.

Although numerous studies use the WHO (2001) classifications of functioning, disability, and health, none specifically use a discriminant profile of the dimensions of acquired disability. A case study conducted by Prodinger et al. (2012) used the WHO's (2001) dimensions to assess a 26-year-old male with spinal cord injury to determine rehabilitative care for those desiring to return to work. The dimensions of acquired disability were used in a study by Harty, Griesel, and van der Merwe (2011) to find a language to improve communication in rehabilitation goal-setting. This comparative study by Harty et al., invited 12 clients and 20 rehabilitation professionals to participate. An activity developed specifically for this study was created, the Talking Mats™ visual framework. Interviews and Talking Mats™ were used to determine if the dimensions of the ICF (WHO, 2001) were considered important to the client and defined the same way their specialists viewed and defined the dimensions (Harty et al., 2011). Harty et al., (2011) determined that professionals using the dimensions of acquired disability did allow for client-focused care and to include the client as an integral member of the rehabilitation team.

Strengths and Weaknesses of the PTGI

The Posttraumatic Growth Inventory (PTGI) developed by Tedeschi and Calhoun (1996), is the primary tool to measure PTG, defined as the phenomenon of significant, positive psychological change following a trauma or life crises (Calhoun & Tedeschi, 2014). There are five factors, or domains, in a 21-question survey that include (a) relating

to others, (b) new possibilities, (c) personal strength, (d) spiritual change, and (e) an appreciation for life (Calhoun & Tedeschi, 2014). The PTGI has been translated to Dutch (Jaarsma, Pool, Sanderman, & Ranchor, 2006), German (Mack et al. 2015) Italian (Prati & Pietrantoni, 2014), Japanese (Taku et al. 2007) and Portuguese (Lamela, Figueiredo, Bastos, & Martins, 2014). In assessing the PTGI, both strengths and weaknesses have been identified.

Taku, Cann, Calhoun, and Tedeschi (2008), conducted a study to see if the PTGI was indeed multidimensional, or if it could be unidimensional. Taku et al. (2008) found high inter-correlations between the five domains. The psychometric analysis of the Taku's et al., team suggested that one and three-factor domains of the PTGI were inferior to the original five-factor domain. Using hierarchical factor analyses, an instrument validated 18-question and 10-question PTGI, became available (Kaler, Erbes, Tedeschi, Arbisis, & Polusny, 2011).

The original 21-question PTGI has been validated in numerous studies with a validated and supported short form. Linley, Andrews, and Joseph (2007) conducted a study with 372 participants with various life crises and reported traumatic events. A confirmatory factor analysis supported the original five-factor structure. Horswill, Desgagne, Parkerson, Carleton, and Asmundson (2016), found that all three PTGI scales (10-question, 18-question and 21-question) were a good fit on the Confirmatory Factor Index. Future studies and development of the PTGI are considering the addition of a compassion factor (Horswill et al., 2016). The possible addition serves as evidence that

PTG research is rapidly expanding to include qualitative features as well (Jayawickreme & Blackie, 2014).

An empirical study by Purc-Stephenson (2014), used confirmatory factor analysis (CFA) to determine if the 21-question PTGI captures PTG for individuals with chronic illness. My study will include individuals who acquired disability as the result of a chronic illness, so this analysis adds further validity to the choice of instrument. Participants were recruited from the Internet and Purc-Stephenson (2014) included 845 patients with irritable bowel syndrome, arthritis, fibromyalgia, ankylosing spondylitis, lupus, Reiter's syndrome, and gout. The PTGI (original 21-question scale) was delivered. Five models were compared that included (a) a one-factor model, (b) an oblique three-factor model, (c) an oblique five-factor model (the original scale), (d) a three-factor model with a single higher-order factor, and (e) a five-factor model with a higher-order factor (Purc-Stephenson, (2014). Of the five models compared, the oblique five-factor model had the best fit.

My study is justified in using both the original five-factor model of the PTGI for independent variables and the dimensions of acquired disability from the WHO (2001) for the discriminant factor analysis. Numerous PTGI studies have been conducted to determine validity, and PTG studies have been replicated with various diagnosis to show reliability. There have not been any studies conducted with the same or similar research questions as those in this study. There is a gap in discriminant analysis literature of the dimensions of acquired disability on the five domains of PTG.

Summary

This chapter reviewed available literature on PTG and related variables and foundational theories that were instrumental in the development of the posttraumatic growth theory. Articles were reviewed from peer-reviewed journals and scholarly journal databases. Statistical information has been drawn from government databases and the International Classification of Functioning, Disability and Health (WHO, 2001).

Theories reviewed included the Adversarial Growth Theory (Affleck & Tennen, 1996; Joseph & Williams, 2005), Cognitive Adaptation Theory (Taylor, 1983), Hardiness Theory (Kobasa, Maddi, & Courington, 1981; Lambert, Lambert, & Yamase, 2003), Organismic Valuing Theory (Joseph & Linley, 2005; Kensit, 2000; Rogers, 1964), and the Resilience Theory (Greene, Galambos, & Youjung, 2003; Richardson, 2002). The posttraumatic growth theory was reviewed in depth through articles on various disabilities and chronic illnesses.

A justification for the choice of independent variables is provided for the five-factor model of the original PTGI (Horswill et al., 2016; Jayawickreme & Blackie, 2014; Kaler et al., 2011; Linley et al., 2007; Purc-Stephenson, 2014; Taku et al., 2008), and for the choice of dependent variables, the three dimensions of acquired disability from the WHO (2001) (Craig et al. 2014; Filipović et al. 2007; Gamino et al. 2009; Harty et al. 2011; Linder et al. 2010; Linton et al. 2000).

Studies have been provided to evaluate possible weaknesses and strengths of the PTGI. These include validity of translated scales (Jaarsma et al. 2006; Lamela et al. 2014; Mack et al. 2015; Prati & Pietrantoni, 2014; Taku et al. 2007). The PTGI scales in Dutch,

German, Italian, Japanese and Portuguese were all found to be valid scales of PTG. The multidimensional factor of the original PTGI has been evaluated in numerous studies (Horswill et al., 2016; Linley et al., 2007; Taku et al., 2008) and a study validated the shorter forms of the PTGI (Kaler et al., 2011). Purc-Stephenson (2014) validated that the PTGI was appropriate for populations with chronic disease. Future studies have been recommended to include qualitative features and the addition of factors such as compassion (Jayawickreme & Blackie, 2014).

The methodology is provided in Chapter 3. This chapter briefly discussed my study's purpose, research design, variables, and the research questions. Chapter 3 presented the sampling strategy and time/resource constraints common with this design. Additional details are provided for the procedures in which participants were recruited, procedures for informed consent, and how the data was collected. Finally, the chapter presented the instrument, data analysis, and any threats to validity.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study is three-fold. First, the study identified the extent to which individuals with acquired disability experience posttraumatic growth. Secondly, the study determined if specific dimensions of acquired disability detailed by the International Classification of Functioning, Disability, and Health (WHO, 2001) score high in specific domains of posttraumatic growth. Finally, the study determined if specific dimensions of acquired disability score low in domains of posttraumatic growth. The major sections of this chapter include the study's research design and approach, the population and sampling procedures and methods, recruitment, data collection, instrumentation and materials, data analysis plan, threats to validity and a summary of the chapter.

Research Design and Approach

This quantitative, cross-sectional survey design was used to examine the following research questions:

RQ1— What are the number of statistically significant uncorrelated linear combinations?

RQ2—What is the multivariate profile (or profiles is there is more than one statistically significant function) of the Posttraumatic Growth Inventory domains that discriminant the dimensions of acquired disability?

The PTGI is a 21-item questionnaire consisting of five domains that include (a) personal strength, (b) new possibilities, (c) relating to others, (d) appreciation of life, and (e) spiritual change. The PTGI uses a Likert scale to rate individual posttraumatic growth

scores in the five domains. The International Classification of Functioning, Disability and Health (WHO, 2001) identifies three dimensions of acquired disability that include (a) impairment or challenges in normal body or mental function; (b) activity limitation and reduced function in one or more of the senses; and (c) participation restrictions and challenges in normal daily activities. The dependent variable will be dimensions of acquired disability as provided by the WHO (2001) in the International Classification of Functioning, Disability and Health. The independent variable will be the posttraumatic growth scores within the five domains of the PTGI.

To determine if a relationship exists between the three dimensions of acquired disability and scores within the five domains of the PTGI, a multivariate discriminant analysis was used. A multivariate analysis of variance (MANOVA) examines the effect of independent variable(s) on a number of dependent variables (Hinton, 2004). This study worked in the opposite direction. Discriminant analysis is the appropriate statistical analysis as it will allow the identification of variables, or attributes as denoted by Duarte Silva and Stam, (2010) that best discriminates members of two or more groups from each other (Field, 2013). In this study, the analysis discriminated which dimensions of acquired disability score low or high in domains of posttraumatic growth. This discriminant profile allows predictions to be made for individuals in dimensions of acquired disability for future consideration of postinjury and postdiagnosis rehabilitation programs to best promote posttraumatic growth. As current research lacks any distinct predictors of posttraumatic growth for this population, the study provides functions of the independent variables, (i.e., the PTGI scores within the five domains), that discriminate

between the conditions of the dependent variable, (i.e., the dimensions of acquired disability). The choice of research design also provides an expeditious return in data collection, access to the targeted population, and a less costly means to collect the data compared to face-to-face delivery, need for printing and postage of mailed questionnaires, and cost of transcription services for telephone surveys (Wright, 2005). The variables included in the study are as follows:

- The participant's gender was measured as 0 (male) or 1 (female).
- Age was measured as 0 (18-35 years), 1 (36-50 years), 2 (51-65 years), and 3 (66+ years).
- The participant's race was identified as 0 (Asian), 1 (Black), 2 (Caucasian), 3 (Hispanic), and 4 (other).
- Marital status was measured as 0 (married) and 1 (not married).
- The number of years that have passed since diagnosis of an acquired disability was measured as 0 (1-5 years), 1 (6-10 years), 2 (11-15 years), 3 (16-20 years), and 4 (20+ years).
- The participant will choose an acquired disability dimension that has the most significant impact on their life. This was measured as 0 (impairment or challenges in normal body or mental function), 1 (activity limitation and reduced function in one or more of the senses), and 2 (participation restrictions and challenges in normal daily activities).
- PTGI variables were measured by 0 (relating to others), 1 (new possibilities), 2 (personal strength), 3 (spiritual change), and 4 (appreciation of life).

Population and Sample

The target population is defined as individuals 18 years of age or older, 12-months postdiagnosis of acquired disability, able to read and write English, and have access to the Internet. Participants are heterogeneous in characteristics and, in the event of multiple challenges and disabilities, were asked to choose the dimension of acquired disability that most notably impacts the quality of life. Participants were recruited through numerous methods including online support groups and self-help groups for individuals with acquired disability, word-of-mouth referrals through social media contacts, and nonprofit advocacy organizations.

Sampling Method

The statistical power, alpha level, and effect size are necessary to determine the sample size for a quantitative study (Field, 2013). Using a .05 level of significance, a statistical power of .80 as recommended by Field (2013), and a medium effect size of $f^2(V) = .0625$ based on Pillai *V*, a computation for sample size was completed. Sample size was calculated using G*Power 3.1.9.2 (Faul, Erdfelder, Buchner, & Lang, 2016). The *F* tests family and the MANOVA: global effects statistical test were chosen as G*Power does not have a discriminant analysis choice for statistical tests. Duarte Silva and Stam, (2010) explained the similarities between MANOVA and discriminant analysis. The G*Power software by Faul et al. (2016) and selected MANOVA option requires the researcher to input the number of groups, in this case the three dimensions of acquired disability, and the number of response variables, which for this study is the five

domains of posttraumatic growth. This generates a total sample size goal of 135 participants.

Recruitment of Participants

Recruitment of participants was achieved through online initiatives. Facebook is a popular medium for online support, particularly within the disability community (Shpigelman & Gill, 2014). As numerous acquired disability groups have found an online presence and support network, Facebook was the recruitment focus. A Facebook page was created (see Appendix A) that included a detailed description of the purpose and focus of the study, eligibility criteria, any possible risks and benefits, instructions for how participants may share the page with others, and a link to the study's SurveyMonkey website (SurveyMonkey, Inc., 2017).

Other online communities for people with disability are active and flourishing (Kaplan, Salzer, Solomon, Brusilovskiy, & Cousounis, 2011; Obst & Stafurik, 2010). These online communities were contacted through email and provided with a description of the study and all relevant links. During the process of data collection, additional emails and reminders were provided.

Instrumentation and Materials

This quantitative study is a cross-sectional survey design. A dedicated Facebook page was created (see Appendix A) and emails directed to online support communities for individuals with acquired disability (see Appendix B) used similar language as detailed in the Facebook portal. An eligibility questionnaire and information sheet screened volunteer participants to insure they meet the criteria (see Appendix C) that

include (a) minimum age of 18 years, (b) have an acquired disability, (c) at least 12-months postdiagnosis of acquired disability, (d) ability to read and write English, and (e) access to and ability to navigate the Internet. The second criteria, that of timing issues to measure posttraumatic growth, a minimum of 12-months postdiagnosis was added to the eligibility criteria after reviewing numerous studies on the appropriate timeframe for posttraumatic growth studies following a traumatic life event (Frazier, Tashiro, Berman, Steger, & Long, 2004; King & Raspin, 2004; Tedeschi & Calhoun, 2004). The primary instrument was the PTGI (see Appendix D). Permission to use the PTGI was requested and granted by the Posttraumatic Growth Research Group (see Appendix E). An additional questionnaire (see Appendix F) allowed participants to self-identify with one of the three dimensions described by the WHO from the International Classification of Functioning, Disability and Health (WHO, 2001). Potential participants were directed to choose only one dimension of acquired disability, that which has the greatest impact on their life. The study was open from July 8, 2017, through October 2, 2017, in collaboration with the IRB at Walden University. A statement of informed consent, instructions, and contact information was made available to the participants.

An informed consent form provided information on the voluntary nature of the study, a detailed statement of confidentiality, an explanation of the minimal risk involved in participation, and a description of researcher measures to insure confidentiality when dealing with participant data. I successfully completed the National Institutes of Health (NIH) Office of Extramural Research training course “Protecting Human Research Participants” (see Appendix G), certification number 1429684.

Posttraumatic Growth Inventory

The PTGI (see Appendix D) is a 21-item, self-report survey designed to assess positive change in five domains. Calhoun and Tedeschi (2014) identified five areas of growth following a traumatic life event. These include (a) Factor I: Relating to Others (7 items), (b) Factor II: New Possibilities (5 items), (c) Factor III: Personal Strength (4 items), (d) Factor IV: Spiritual Change (2 items), and (e) Factor V: Appreciation of Life (3 items) (Calhoun & Tedeschi, 2014). Using a six-point Likert scale, participants are asked to rate 21 items with the degree of change precipitated by a life crisis, the diagnosis of an acquired disability. Calhoun and Tedeschi's (2014) PTGI scale is detailed as (a) 0 = I did not experience this change as a result of my crisis, (b) 1 = I experienced this change to a very small degree as a result of my crisis, (c) 2 = I experienced this change to a small degree as a result of my crisis, (d) 3 = I experienced this change to a moderate degree as a result of my crisis, (e) 4 = I experienced this change to a great degree as a result of my crisis, and (f) 5 = I experienced this change to a very great degree as a result of my crisis. In the study, the word *crisis* was changed to *acquired disability*.

Reliability and Validity of PTGI. The PTGI has been used in scholarly research for over 2 decades and the inventory is now available in numerous languages (Tedeschi & Calhoun, 2004). Evidence supports the reliability, factor structure, concurrent validity, and internal consistency for the Posttraumatic Growth Inventory (Cohen et al., 1998; Jiet al., 2011; Kaler, et al., 2011; Sheikh & Marotta, 2005). To validate the five domains of posttraumatic growth as being both separate and meaningful measures, a confirmatory analysis was completed of 14 studies and 926 adults (Taku, et al., 2008).

PTGI Studies on Specific Populations. PTGI studies have been published on specific illnesses and acquired disabilities. Confirmatory analysis and an empirical study by Purc-Stephenson (2014) determined that the PTGI does capture posttraumatic growth for individuals with chronic illness such as digestive disorders like Crone's disease and irritable bowel syndrome. Posttraumatic growth has also been measured in populations with, lupus, Reiter's syndrome, gout, and pain and inflammatory disorders such as arthritis and fibromyalgia. Pollard and Kennedy (2007) found similar results and validity in PTGI studies on individuals with spinal cord injuries. Scrignaro, Barni, and Magrin (2011) found the same results in PTGI studies for individuals with cancer. Posttraumatic Growth Inventory studies on traumatic brain injury found that the PTGI was a valid measurement of posttraumatic growth (Powell, Gilson, & Collin, 2012). This study will fill a gap in the research for PTG in populations with acquired disability.

Participant Protection and Exit

Care and consideration was taken throughout the study to protect participants and to ensure an exit strategy that reminded participants of confidentiality and informed them of data storage procedures. During the initial recruitment stage and screening procedures, participants were given a detailed informed consent form. This form included details of any risks and benefits in participation and a reminder that the participant may exit the study at any time. This form also detailed for the participant the confidential nature of the study and informed them how the data was accessed only by the researcher, how anonymity was insured, and how data was stored.

The quantitative data was coded and stored on a password protected personal computer and cloud service used only by the researcher. Using a SurveyMonkey (SurveyMonkey Inc., 2017) website for the study, IP addresses were not collected nor tagged, thus ensuring the anonymity of participants. A secured sockets layer created a secure connection between participant and the SurveyMonkey server, which encrypted all information transferred through the website (SurveyMonkey Inc., 2017, SSL Encryption section). Data collected was transferred to IBM Statistical Package for Social Sciences (SPSS) version 24.0 software and stored on servers within the United States with backups that occurred every hour on a secure, personal computer and cloud service.

For participants who indicated during the screening process an interest in an end of study summary and exit information, this was provided to those who choose to leave a personal email address. The study summary and exit information was provided (see Appendix I). Self-reflection about the traumatic life event of acquired disability has a minimum risk of harm. However, in the event a participant wanted to receive follow-up care, a toll-free number and website was provided so that they could discuss the emotional responses the study may have produced.

Data Analysis Plan

Data was collected using online survey software, SurveyMonkey Inc., (2017) and transferred to IBM SPSS (v24) for statistical analysis. SurveyMonkey software has a screening logic program to exclude participants that do not meet the study requirements. Discriminant function analysis was used to answer the research questions:

RQ1— What are the number of statistically significant uncorrelated linear combinations?

RQ2—What is the multivariate profile (or profiles is there is more than one statistically significant function) of the Posttraumatic Growth Inventory domains that discriminant the dimensions of acquired disability?

The second research question examined how the discriminant profile of each dimension of acquired disability was described in the International Classification of Function, Disability and Health (WHO, 2001) differed in high and low scores of the domains of posttraumatic growth.

Threats to Internal, External, and Construct Validity

The study was limited to the features of an online survey research design (Ilieva, Baron, & Healey, 2002). These limitations included the participant's minimum knowledge of technology expertise and access to that technology. This eliminated those within the general population who had acquired disabilities but limited knowledge or access of Internet-based surveys. This was considered a threat to external validity. Another limitation was that of mode effect. Duffy, Smith, Terhanian, and Bremer (2005) explain mode effect as the likelihood of online survey participants choosing midpoints on scales instead of extreme choices on these scales. Despite limitations to online surveys, individuals with disability often find the online environment accessible due to the numerous advances and strides in technology (Bache & Derwent, 2008; Obst, & Stafurik, 2010) and so it was hoped the advantages of online surveys for disability populations was greater than known limitations.

The internal validity of the study was limited by the online survey design specifics such as the inability for the researcher to observe the participants to provide an

environment with few distractions so that the survey items could be read carefully with a genuine response (Riva, Teruzzi, & Anolli, 2003). As the study measured posttraumatic growth, it was also unknown if this would influence participants to look for and only focus on positive changes even if the result of acquired disability also had a significant negative impact on their life. This social desirability threat to internal validity has been described in numerous studies (Tennen & Affleck, 2002, Wortman, 2004, McFarland & Alvaro, 2000). A final threat to internal validity was that of researcher bias. The researcher for this study was a long-time member of the target population and a leader in local community advocacy efforts for people with disability. The study was a quantitative, controlled survey design and had established safeguards in place through the anonymity in data collection using SurveyMonkey Inc., (2017) to eliminate this type of researcher bias.

Construct validity refers to the validity and reliability of the instrument to be used. The PTGI validity and reliability have been detailed previously and both were considered acceptable (Cohen, Cimbolic, Armeli, & Hettler, 1998; Kaler, Erbes, Tedeschi, Arbisis, & Polusny, 2011; Sheikh & Marotta, 2005; Tedeschi & Calhoun, 1996). Creswell (2009) writes that a common construct validity stems from inadequate definitions of measures of variables; however, the study used the PTGI with acceptable definitions of the constructs in the study (Tedeschi & Calhoun, 2004).

Ethical Procedures

The cross-sectional online survey design had a number of ethical considerations. The first consideration was that of the target population, persons with acquired disability.

According to the American Psychological Association, populations that include acquired disability are considered a vulnerable population (APA, 2002). Guideline 13 (APA, 2017) instructs psychology professionals who are testing or assessing individuals with disability in a clinical setting to "strive to consider disability as a dimension of diversity together with other individual and contextual dimensions" (APA, 2017, Testing and Assessment: Guideline 13, para. 1). The study was not a clinical setting, neither was an assessment delivered for the purpose of diagnosis or treatment plan. No anticipated harmful effects existed under the research plan. Although a slight risk exists for emotional upset after considering possible posttraumatic growth, participants were voluntary and were able to leave the study at any time and was noted in the Informed Consent section. An exit summary and information sheet was also provided to those who completed the study and included links to information about posttraumatic growth as well as website links and toll-free numbers for assistance to discuss any emotional triggers brought on by completion of the survey.

Summary

This chapter reviewed the purpose of the study and the design choice. The design choice and chosen analysis were linked to the research questions. The population and sampling procedure were discussed, including screening criteria for volunteer recruits, informed consent, and the exit strategy for participants. This chapter also reviewed the various threats to validity including external, internal and construct threats. The instrument, the PTGI, was described and reviewed for known strengths and weaknesses.

Ethical procedures for the study were considered including those in engaging people with acquired disability and the treatment of and storage of the data collected.

The following chapter covered data collection procedures. This chapter described the time frame for data collection, the recruitment procedure, and the response rate. Information on data screening, missing data, descriptive statistics, and a discriminant function analysis was provided.

Chapter 4: Results

Introduction

The purpose of this study was to identify the amount of, if any, posttraumatic growth experienced by persons with acquired disability. The study also was conducted to determine if specific dimensions of acquired disability as described by the International Classification of Functioning, Disability, and Health (WHO, 2001), scored high or low in domains of posttraumatic growth. These domains include (a) personal strength, (b) new possibilities, (c) relating to others, (d) appreciation of life, and (e) spiritual change (Calhoun & Tedeschi, 2014). This study included the following research questions:
RQ1— What are the number of statistically significant uncorrelated linear combinations?
RQ2—What is the multivariate profile (or profiles if there is more than one statistically significant function) of the Posttraumatic Growth Inventory domains that discriminant the dimensions of acquired disability?

The hypotheses for this study included the null hypothesis that the canonical correlation value is equal to zero in the population, while the alternative hypothesis is that his correlational value is greater than zero in the population. These questions are answered through an explanation of data collection procedures and methodology, data analysis and results, and a summary of the findings.

Data Collection Procedures

Participant recruitment began on July 8, 2017 and concluded October 2, 2017 through the medium of a Facebook page and a week-long targeting procedure through Facebook advertising from September 23, 2017 to September 30, 2017. The targeting

campaign resulted in an additional 512 impressions, invitations to preview the Facebook page about the study, in addition to those generated from word-of-mouth invitations, and emails (see Appendix B) to online support groups serving those with acquired disability. The Facebook page provided a summary of what the study was (see Appendix A), in addition to a link to the survey using SurveyMonkey.

Description of the Sample

At the conclusion of the collection period, 208 participants started the survey and indicated they had read the informed consent and parameters of the study. Seventeen of those respondents marked one of the four eligibility items (see Appendix C) as "no", necessitating the deletion of these cases from the dataset. All but one of the deleted cases responded "no" to Number 4 (see Appendix C), which indicated they were at least 12 months postdiagnosis of an acquired disability. The remaining ineligible case responded "no" to Number 3, which indicated whether they had access to the Internet. This lowered the valid *N* from 208 to 191 respondents.

Sixteen of the 191 respondents had missing data on the acquired disability type variable. Appendix F lists the choices of acquired disability type as designated by the International Classification of Functioning, Disability, and Health (WHO, 2001), as (a) impairment in body function, (b) impairment in boy structure, and (c) impairment in growth, activity, and participation in normal life activities. This further reduced the valid *N* to 175 cases. Fourteen of the remaining cases had missing data on all 21 items of the PGTI (see Appendix D). This changed the final *N* to 161 valid cases. After eliminating noneligible participants and responses with missing data, 77.4% of the original 208

individuals were available for analysis. As detailed in Chapter 3, the target sample size was at least 135 participants.

Demographic characteristics of the 161 participants are detailed in Table 1. There were nearly five times more females (133, 82.6%) than males (28, 17.4%). This survey research used a Facebook invitation and description of the study. Studies have shown that social media sites such as Facebook are similarly used by both males and females (Correa, Hinsley, & Gil de Zúñiga, 2009; Ellison, Steinfield, & Lampe, 2007; Ross et al., 2009), which suggests males, overall, were underrepresented. However, 65.8% (*n* = 108) of this study's participants were in the age range of 36 to 65 years old, which some studies suggest females are more active than males on Facebook (Vosner, Bobek, Kokol, & Krecic, 2016; Weiser, 2000). Also, Vishnevsky, Cann, Calhoun, Tedeschi, and Demakis (2010) found that women were more likely to self-report as having experienced posttraumatic growth. As the Facebook invitation (see Appendix A) included a description of the study which included information about PTG, this also may explain why more women responded than men.

The majority of participants identified as Caucasian (86.3%; 139 participants). Only three participants identified as Asian, four as Black, 3 as Hispanic, and 12 as Other. Of those who completed the survey, 103 (64.0%) were married while 58 (36.0%) identified as not married. The number of years since diagnosed with an acquired disability varied across the five ordinal categories with most (*n* = 49, 30.4%) diagnosed for 1 to 5 years.

Table 1

*Demographic characteristics of participants (*N = *161)*

Characteristic	*n*	%
Sex		
Male	28	17.4
Female	133	82.6
Age range		
18-35	24	14.9
36-50	47	29.2
51-65	59	36.6
Over 65	31	19.3
Race		
Asian	3	1.9
Black	4	2.5
Caucasian	139	86.3
Hispanic	3	1.9
Other	12	7.5
Marital status		
Married	103	64.0
Not married	58	36.0
Years since acquired disability diagnosis		
1-5	49	30.4
6-10	29	18.0
11-15	26	16.1
16-20	17	10.6
Over 20	40	24.8
Acquired disability type		
Body function	111	68.9
Body structure	16	9.9
Growth, activity, participation in normal life	34	21.1

Participants self-identified with one of the three types of acquired disability as detailed by the International Classification of Functioning, Disability, and Health (WHO, 2001). Of the 161 participants, 111 (68.9%) chose impairment in body function. This includes the largest variety of acquired disabilities including sensory functions (those of the five senses), voice and speech functions, cardiovascular, respiratory, digestive,

endocrine, neuromusculoskeletal, and skin or tissue functions (WHO, 2001). A simplified way to explain an impairment in body function is any deviation of normal performance, purpose, or action of a body system for which it was designed (WHO, 2013). Sixteen participants (9.9%) self-identified an impairment in body structure. This type includes any disability that results from a change in appearance or design of a body structure (WHO, 2013). This can include amputations, paralysis, or tissue degeneration of a body part caused by accident or medical procedure. The third and final acquired disability type is impairment in growth, activity, and participation in normal life activities, which was selected by 34 (21.1%) participants. This impairment includes learning and applying knowledge, general life tasks and demands, communication, mobility, self-care, domestic and community life skills (WHO, 2001). The WHO (2013) differentiates the acquired disability types as (a) impairment in body functions are affected by physiology that does not work within normal ranges, (b) impairment in body structures are affected by anatomy problems or damage, and (c) impairment in growth, participation, and life activity as requiring assistance from others and cannot be completed independently. As participants may self-identify with more than one type of acquired disability, instructions requested that they choose the category that has the greatest impact on their life.

PTGI Scale Reliability and Descriptive Statistics

The five independent variables included the domain scores of the PTGI and the dependent variable was the acquired disability types. The 161 participants self-administered the PTGI, responding to any change in relating to others, new possibilities, personal strength, spiritual change, and appreciation of life because of their acquired

disability. Table 2 includes the descriptive statistics of each subscale. Skewness and kurtosis were within acceptable normal distribution values. Kline (2016) noted that parametric statistics were robust with skewness < |3| and kurtosis < |7|.

Table 2

*Descriptive Statistics of PTGI Subscales (*N = *161)*

PTGI subscale	*M*	Mdn	*SD*	*S*	*K*	Min	Max
Relating to others	3.32	3.29	1.18	0.05	-0.86	1.00	5.86
New possibilities	3.34	3.20	1.28	0.16	-0.83	1.00	6.00
Personal strength	3.71	3.75	1.27	-0.21	-0.81	1.00	6.00
Spiritual change	2.65	2.00	1.75	0.68	-0.92	1.00	6.00
Appreciation of life	3.86	4.00	1.38	-0.32	-0.92	1.00	6.00

Note. *M* = mean, Mdn = median, *SD* = standard deviation, *S* = skewness, *K* = kurtosis, Min = minimum value, Max = maximum value.

Reliability Analysis

Using Cronbach's alpha, the reliability of each subscale was determined (see Appendix E for item details). Of the 21 items on the PTGI, Survey Statements 6, 8-9, 15-16, and 20-21 make up Subscale I, Relating to Others. Survey Statements 3, 7, 11, 14, and 17 are Subscale II, New Possibilities. PTGI Statements 4, 10, 12, and 19 make up Subscale III, Personal Strength. The remaining items make up Subscale IV (Spiritual Change) and V (Appreciation of Life), with Items 5 and 18 corresponding to Subscale IV and Items 1-2, and 13 to Subscale V. Reliability would be high if individuals with the

self-identified acquired disability type scored both high and low on subscales of the PTGI. Cronbach's alpha (α) indexes the interitem consistency of each subscale. An acceptable value for Cronbach's α is .7 or higher (Field, 2013). Table 3 shows the reliability analysis for each subscale of the PTGI.

Table 3

*Reliability Analysis of PTGI Subscales (*N *=161)*

PTGI subscale	α	# items	Inter-item correlations		
			Min	*M*	Max
Relating to others	.84	7	.18	.43	.61
New possibilities	.79	5	.30	.44	.63
Personal strength	.75	4	.26	.44	.66
Spiritual change	.86	2	--	.75	--
Appreciation of life	.74	3	.36	.48	.63

Note. α = Cronbach's alpha, Min = minimum, *M* = mean, Max = maximum.

Screening for Assumptions and Limiting Conditions

Discriminant analysis can be affected by sample size, outliers, multivariate normality, homogeneity of variance, and multicollinearity (Tabachnick & Fidell, 2007). The analysis discriminated three groups (acquired disability types) on five predictors (domains of PTGI). The size of the smallest group needed to exceed the number of predictors (Tabachnick & Fidell, 2007). The smallest group contained 16 participants, so this assumption was met. Because the groups were unequal in size, a priori probabilities

were used for discriminant classification results. Univariate and multivariate outliers were screened separately by group (Tabachnick & Fidell, 2007).

The values in Table 4 are standardized scores on each subscale by group. No case exceeded a standardized score exceed ±3.29, indicating no univariate outliers (Tabachnick & Fidell, 2007). Multivariate outliers were assessed by regressing a random variable on the set of the five domains of PTGI and examining Mahalanobis values that exceeded the chi-square critical value at α of .001 for degrees of freedom = the number of predictors (five domains of PTG). In this case, the critical value was 20.515. Table 5 is a report of the maximum Mahalanobis values for each acquired disability type. None exceed 20.515 so no multivariate outliers existed.

Table 4

Screening of Univariate Outliers on PTGI Subscales by Acquired Disability Type

	Acquired disability type					
	Body function *n* = 111		Body structure *n* = 16		Growth, activity, participation in normal life *n* = 34	
	Standardized *Z* scores					
PTGI subscale	Min	Max	Min	Max	Min	Max
Relating to others	-1.96	1.83	-1.93	1.69	-1.62	2.36
New possibilities	-1.84	1.97	-1.14	1.58	-1.38	1.99
Personal strength	-2.20	1.76	-1.93	1.69	-1.44	2.08
Spiritual change	-0.92	1.95	-1.14	1.85	-0.93	1.79
Appreciation of life	-2.13	1.56	-1.80	1.36	-1.78	1.63

Table 5

Screening of Multivariate Outliers on PTGI Subscales by Acquired Disability Type

Acquired disability type	Mahalanobis distance
Body function	15.473
Body structure	8.956
Growth, activity, participation in normal life	15.830

According to Tabachnick and Fidell (2007), a widely accepted test of multivariate normality does not exist; however, discriminant analysis is robust to violation effects with 5 or fewer predictors and 20 cases in the smallest group. This analysis had a group of 16; therefore, power could be slightly reduced.

Table 6 reports Levene's test of homogeneity of variance and variance inflation factors. The homogeneity of variance was nonsignificant for each PTGI subscale, so the assumption was met. Variance inflation factor values were all less than 10, so there was no multicollinearity concern (Field, 2013).

Table 6

Homogeneity of Variances and Multicollinearity Screening of PTGI Subscales

	Levene Statistic		
PTGI subscale	$W(2, 158)$	p	VIF
Relating to others	0.63	.533	2.48
New possibilities	0.15	.858	2.21
Personal strength	0.27	.765	2.25
Spiritual change	0.22	.805	1.57

Appreciation of life	0.14	.866	2.42

Means and Standard Deviations of PTGI Subscales by Acquired Disability Type

Table 7 reports the means and standard deviations of each PTGI subscale score by acquired disability type. Individuals in the impaired body structure group scored highest on three of the four PTGI subscales; new possibilities, personal strength, and spiritual change. Individuals in the impaired growth group scored lowest on three of the four subscales; relating to others, personal strength, and appreciation of life. Individuals in the impaired body function group scored highest on two subscales; relating to others and appreciation of life; but also scored lowest on two subscales; new possibilities and spiritual change. Statistical tests of univariate and multivariate differences are reported in the next section.

Table 7

Means and Standard Deviations of PTGI Subscales by Acquired Disability Type

	Acquired disability type					
	Body function $n = 111$		Body structure $n = 16$		Growth, activity, participation in normal life $n = 34$	
PTGI subscale	*M*	*SD*	*M*	*SD*	*M*	*SD*
Relating to others	**3.36**	1.21	3.29	1.21	***3.23***	1.11
New possibilities	***3.32***	1.26	**3.41**	1.39	3.40	1.31
Personal strength	3.78	1.26	**4.02**	1.17	***3.34***	1.28
Spiritual change	***2.60***	1.74	**2.91**	1.68	2.71	1.84
Appreciation of life	**3.89**	1.36	3.85	1.58	***3.76***	1.37

Note. **Bold** values are the highest across groups; ***bold-italic*** values are the lowest across groups.

Discriminant Analysis

A discriminant function analysis was performed using SPSS. This was done in order to determine ANOVA results of equality of group means across each of the PTGI subscale scores and to determine the multivariate pattern of PTGI subscale scores that discriminate between the types of acquired disability. Discriminant analysis was specifically used to address each research question:

RQ1— What are the number of statistically significant uncorrelated linear combinations?

RQ2—What is the multivariate profile (or profiles if there is more than one statistically significant function) of the Posttraumatic Growth Inventory domains that discriminant the dimensions of acquired disability?

The ANOVA results are presented in Table 8 and pairwise comparisons of highest and lowest scores on each PTGI subscale are presented in Table 9. None of the ANOVAs were statistically significant. Only one of the pairwise comparisons approached significance. This comparison was between the body structure group and the growth group on personal strength. As noted in Table 7 above, the body structure group had the higher personal strength score, and the effect was medium-size (Cohen's d = .55, η^2 = .0632). All of the other pairwise comparisons yielded extremely small effect sizes.

Table 8

*ANOVA Results of Acquired Disability Groups on PTGI Subscales (*N *=161)*

PTGI subscale	*F*(2, 158)	*p*
Relating to others	0.17	.844

New possibilities	0.08	.924
Personal strength	2.12	.124
Spiritual change	0.23	.792
Appreciation of life	0.10	.905

Table 9

Select Pairwise Comparisons of Acquired Disability Groups on PTGI Subscales

PTGI subscale	Pair	*t*	*df*	*p*	η^2	*d*
Relating to others	1-3	0.56	143	.577	.0022	.11
New possibilities	2-1	0.26	125	.792	.0006	.07
Personal strength	2-3	1.80	48	.078	.0632	.55
Spiritual change	2-1	0.67	125	.505	.0036	.18
Appreciation of life	1-3	0.49	143	.627	.0017	.10

Note. Pair indicates the groups compared (the first number in the pair had the highest mean (see Table 7): 1 = body function, 2 = body structure, 3 = growth, activity, participation in normal life. η^2 = eta squared, the proportion of variance in subscale score accounted for by group membership. *d* = Cohen's *d*.

The multivariate discriminant analysis was not statistically significant, and not surprisingly so given the univariate results reported above. Because there were three acquired disability groups, discriminant yielded two functions. The first function accounted for 81.5% of the total variance and had a canonical correlation of .236, explaining 5.6% of group variability on the weighted composite of all PTGI subscales. The second function accounted for the remaining 18.5% of the variance and had a canonical correlation of .115 (1.3% of group variability).

Discriminant statistically tests the total solution (i.e., combined effect of both functions) and, separately, the second function by itself. The total solution was not statistically significant, Wilks $\Lambda = .932$, $\chi^2(10, N = 161) = 11.01$, $p = .357$. If the total solution is not significant then Function 2 by itself cannot be significant, which it wasn't, Wilks $\Lambda = .987$, $\chi^2(4, N = 161) = 2.07$, $p = .723$.

Even though the analysis was not significant, the coefficients and group centroids are presented to inform future research, but only Function 1 results are discussed. Table 10 reports the correlations of each PTGI subscale and the standardized discriminant coefficients with the Function 1 and Function 2 composite scores.

Table 10

*Discriminant Function Coefficients and Correlations (*N *= 161)*

	Correlations with discriminant functions		Standardized discriminant function coefficients	
PTGI subscale	Function 1	Function 2	Function 1	Function 2
Relating to others	.157	-.229	-0.010	-1.051
New possibilities	-.074	.227	**-0.837**	0.633
Personal strength	**.666**	.216	**1.422**	0.479
Spiritual change	-.022	.468	-0.282	0.933
Appreciation of life	.135	-.118	-0.099	-0.640

The standardized coefficients reveal the relative weight and pattern of the PTGI subscale score with respect to the composite function score. The Function 1 score was most influenced by the personal strength score and the new possibilities score. The signs of these two indicate that to have a high score on Function 1 an individual needed a high

score on personal strength but a low score on new possibilities. Not surprisingly, the personal strength scores were highly correlated (.666) with the Function 1 composite score.

Though speculated because the results were not statistically significant, the group centroids as displayed in Figure 1 indicate that Function 1 (the horizontal axis) maximally discriminated between the growth, activity, participation acquired disability group and the body structure group. The growth group had a mean Function 1 score of -0.456 compared to the body structure group with a mean of 0.263. This indicates that those in the growth group, because they had a low Function 1 mean score, tended to have high scores on new possibilities and, simultaneously, low scores on personal strength. Conversely, those in the body structure acquired disability group tended to have low scores on new possibilities and high scores on personal strength. This is consistent with the previously reported (see Table 9) pairwise comparison of these two groups on personal strength.

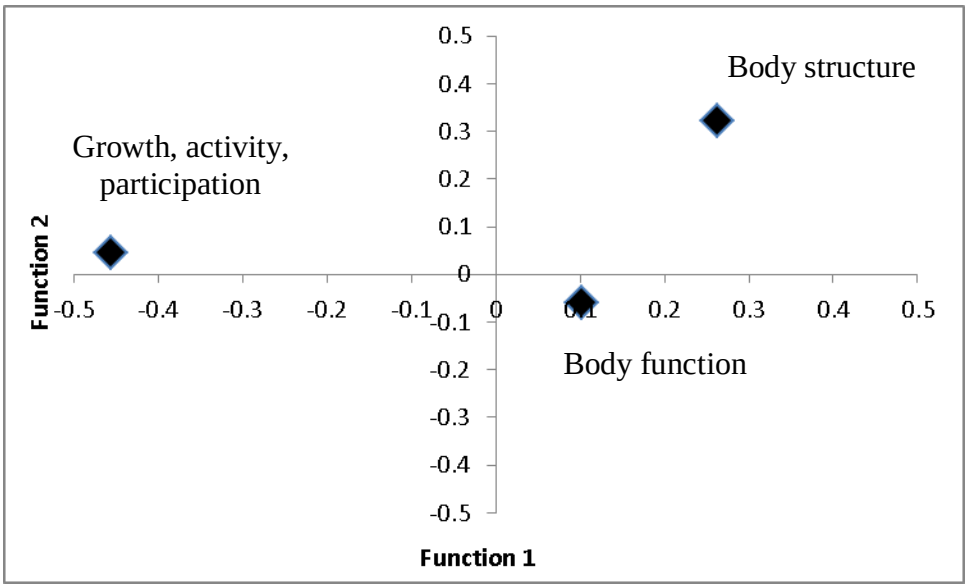

Figure 1. Acquired disability group centroid plot of discriminant Function 1 and 2.

Summary

From July 8, 2017 through October 2, 2017, 208 participants started the survey after responding to a Facebook invitation or email invitation (see Appendices A and B). Seventeen participants were removed after responding "no" to one of the four eligibility requirements (see Appendix C). Sixteen participants were removed for no response to self-identifying with one of three acquired disabilities detailed by the WHO (Appendix F). Fourteen of those surveyed had missing data from the 21-item Posttraumatic Growth Inventory (Appendix D). The final, valid number of cases for this research study was 161.

Females, Caucasians, and married individuals were overrepresented in the sample. The vast majority of participants identified as having a body function acquired disability, though there were sufficient numbers of the other two types for the planned statistical

analyses. All five of the PTGI subscales were reliable, with Cronbach α ranging from a low of .74 to a high of .86. Data were screened for discriminant analyses assumptions and limiting conditions and no threats were found.

None of the univariate ANOVA analyses of the PTGI subscales were statistically significant. A pairwise comparison of the impaired body structure group and the impaired growth, activity, participation group on personal strength scores approached significance, with the body structure group having the larger mean. The strength of this one univariate result was evident in the multivariate discriminant results, though neither of the two discriminant functions were statistically significant. Chapter 5 presents interpretations of the findings, limitations of the study, future recommendations for research, and implications for positive social change.

Chapter 5: Discussion, Limitations, Recommendations, and Implications

Introduction

The purpose of this study was to identify the amount of, if any, posttraumatic growth experienced by individuals over 18 years of age with acquired disability. The study also was conducted to determine if specific dimensions of acquired disability as described by the International Classification of Functioning, Disability, and Health (WHO, 2001), scored high or low in domains of posttraumatic growth. These domains included (a) personal strength, (b) new possibilities, (c) relating to others, (d) appreciation of life, and (e) spiritual change (Calhoun & Tedeschi, 2014).

This study used a quantitative, cross-sectional survey design with participants drawn from invitations extended through Facebook (see Appendix A) and emails to disability support organizations (see Appendix B). Participants responded to screening questions that insured they were at least 18-years-old, were able to read and write English, had Internet access, and were at least 1-year postdiagnosis of an acquired disability (see Appendix C). Participants were asked to take the PTGI (see Appendix D), and to self-identify with one of the three acquired disability types as described by the International Classification of Functioning, Disability and Health (WHO, 2011). A discriminant function analysis was performed to determine if participants scored low or high in any of the posttraumatic growth domains.

Interpretation of the Findings

The valid sample of 161 participants was overrepresented by females, Caucasians, and married persons who self-identified with an acquired disability as described by the

International Classification of Functioning, Disability, and Health (WHO, 2001) and included an acquired disability in body function, body structure, and growth, activity, and participation. Of the three acquired disability types, most participants identified with body function acquired disability. The five subscales of the PTGI were reliable with Cronbach α ranging from .74 to .86. No threats were found in discriminant analyses assumptions and limiting conditions. Though none of the univariate ANOVA analyses of the five PTGI subscales were statistically significant, a pairwise comparison of the impaired body structure group and the impaired growth, activity, and participation group on personal strength approached significance. The larger mean in the body structure group shows the strength of this one univariate result and was evident in the multivariate discriminant results. Neither discriminant function was statistically significant. This study extends the knowledge of posttraumatic growth studies by providing the analysis of the pairwise connection of the second and third acquired disability types on the domain of personal strength. The rest of the discriminant analysis is not interpretable and prediction of group membership of various domains of posttraumatic growth is not possible.

Limitations of the Study

Only 16 of the 161 valid participants self-identified as a person with acquired disability in body structure. The underrepresentation of participants with acquired disability in body structure may be the result of the medium of Facebook for the survey. These challenges are often the result of surgical or accidental removal of or damage to eye or ear structures, vocal cords, and structures that provide movement such as paralysis and amputations (see Appendix F). These impairments may impede access and pose a

challenge to individuals seeking to use social media and the technologies that drive them (Baker, et al., 2012). Although accessibility exists, the lack of awareness of these accessibility options is considerable making platforms like Facebook underutilized by this group. Baker, Bricout, Moon, Coughlan, and Pater (2012) acknowledged that although available technology exists to make social media accessible to these types of disabilities, the standards adopted by companies who use web access to connect people with each other and to provide access to invitations, such as this study's survey, continues to be a major concern for disability rights activists and counsel. Individuals without access to accessible technologies may stem from economic restrictions and a lack of awareness to the connections available through social media. Baker and Moon (2008) suggested that neither ADA policies nor laws have caught up with available technologies and accessibility options, thus requiring social media sites to be completely inclusive to individuals with body structure impairments. Dobransky and Hargittai (2006) found that persons with acquired disability in hearing and walking ability are avid social media users compared to those individuals with disabilities of sight, structures allowing communication, and impaired movement caused by paralysis and amputation. These would include individuals with impairment in body structure as outlined by the WHO (2011) and may account for the smaller number of people self-identified as such for this study.

The third acquired disability type was represented by 34 of the 161 valid participants. The third acquired disability type was also underrepresented. This includes those with a reduced ability and impairment in learning, applying knowledge,

communicating, intellectual growth and activity, self-care and domestic activities, and using transportation (WHO, 2011). Davies et al. (2015) found that young adults within this third type of acquired disability are more aware of Facebook interfaces that allow them to successfully navigate the social media site including finding support that may include invitations to participate in research compared to middle-age and older users within the same population. In addition to these barriers, privacy settings and literacy requirements often impeded Facebook users in this acquired disability type to participate in opportunities such as research invitations (Shpigelman & Gill, 2014). Tabachnick and Fidell, (2007) explained that in discriminant analysis, robustness is expected in groups with a sample size of at least 20 participants. The third acquired disability type included 34 participants for this study; however, the second type that includes impairment in body structure only had 16 participants. The total number of participants (N=161) was sufficient to run a discriminant analysis, but the sample size of this single group was too small. The strength of the interpretation was impacted by the underrepresentation of these two types of acquired disability. This does provide an opportunity for additional research, however, and will be discussed in the next section.

Recommendations for Future Research

To discover statistically significant, uncorrelated linear combinations and find the multivariate profile of posttraumatic growth domains that discriminate the dimensions of acquired disability, future studies should seek to obtain a significant sample size of all three acquired disability types. In this study, efforts for recruitment focused on Facebook users. Although emails were sent to disability support groups informing them of the

Facebook recruitment page, a Facebook advertisement initiative produced most participants from those who saw and responded to the Facebook invitation. The majority of this study's participants were individuals who identified with impairment in body function. To find a more equal representation of individuals with impairment in body structure and growth, activity, and participation, specific disability support organizations should be targeted to send email invitations to members of their focused population.

Individuals who self-identify with the acquired disability populations of impairment in body structure and growth, activity, and participation may also have lacked participation in this study because of the designated amount of time required postdiagnosis. Some types of acquired impairment are more difficult to adjust to and cope with short-term. Hernandez et al. (2014) suggested that posttraumatic growth may not occur in individuals with traumatic injury until 5 years postdiagnosis. As screening questions informed participants the study was about posttraumatic growth, and as it eliminated individuals less than a year, there still may have been individuals who declined the invitation because they were still adapting and learning to cope with the significant challenges of a disability one to five years after diagnosis. Powell, et al. (2012) suggested that more than a decade may be needed for individuals with traumatic brain injury to experience posttraumatic growth. This would include individuals with impairment in growth, activity, and participation in normal life events. The screening question marking at least 1 year postdiagnosis may not have inspired participants to respond if they did not feel any growth had been achieved in so short a time from the date of their accident.

Future posttraumatic growth studies may benefit from a more specific classification of acquired disability types. Although the International Classification of Functioning, Disability, and Health (WHO, 2011) is widely used and universally accepted in typology, the categories are very general and may be all inclusive to the point that participants lacked a clear understanding of how their acquired disability is designated by type alone. A more detailed description of the types and inclusion of specific diagnoses that fall within each type may generate more individuals in choosing one of the underrepresented acquired disability types. Individuals with more than one type of impairment were instructed to choose the type that had the greatest impact on their life. More detailed descriptions and lists of specific diagnosis may generate more participants to choose one of the underrepresented types should an individual have more than one type.

Implications of Social Change

Chapter 1 of this study identified implications for social change in educational settings. Had the analysis provided which dimensions of acquired disability scored high or low in various domains of posttraumatic growth, this information could influence the planning and availability of aftercare programs designed to foster growth in the domains of posttraumatic growth. Although the sample size within each acquired disability group varied dramatically, skewness and kurtosis were within acceptable normal distribution values. The larger mean in the body structure group shows the strength of this one univariate result. The pairwise comparison of the second and third groups on the domain of personal strength approached significance.

Bines and Lei, (2011) report that college campuses in the U.S. are focusing on programs and activities that retain and include diversity groups. Olkin (2002) explains that as individuals with disability span all other diversity groups such as ethnicity, gender, age, and religion, colleges should incorporate plans to fully include students with disabilities such as student clubs and groups, counseling and advising services, and campus disability awareness campaigns (Polat, 2011). Campus inclusive activities should focus on recognizing personal strength in individuals and also participation in activities that will further strengthen this domain. This may include honor societies such as Delta Alpha Pi International Honor Society. To date, only 34 of the 50 states in the U.S. have at least one chapter of this honor society designated solely for those who have disabilities (DAPi, 2018), which suggests recognition of this type of academic strength in individuals with disabilities is not a priority.

Disability Student Services departments on college campuses address accessibility, accommodations, and assistive technologies for students with a diverse range of disabilities. The National Center for Education Statistics reported that approximately 11% of all undergraduates had a disability of some type in the 2011-2012 school year (United States Department of Education, 2018). Although this statistic includes those with congenital disabilities and not measured in this study, the numbers support the efforts colleges are making to hire personnel to organize and maintain advocacy groups, awareness campaigns and initiatives, and student support organizations.

Future research that includes discriminant analysis of specifically targeted populations to equally measure participants in all three acquired disability groups would

provide further information to colleges in the types of programs, workshops, trainings, and activities necessary to promote growth in all five of the posttraumatic growth domains. These initiatives could successfully prove to maximize growth potential in college students with disabilities (Joseph & Linley, 2005). This type of focused research would also govern counseling approaches to students with disabilities. Should dimensions of disability be shown to predict high levels of posttraumatic growth in the five domains, counselors and academic advisors can encourage course selection and campus activities for these students. These changes will positively impact retention and inclusion of students with disability. The efforts from incorporating both campus activities and academic counseling with posttraumatic growth domains as the impetus to launch new initiatives and shore-up current programs for students with disability, ultimately generates stronger candidates for employment after receiving undergraduate degrees (Hitchings, et al., 2001, Ju; Zhang, & Pacha, 2012). Students with disabilities that have received opportunities for growth are more likely to transition from college to successful careers (Corrigan, Jones, & McWhirter, 2001).

Conclusion

Although this study and analysis only found one significant pairwise connection between impairment in body structure and growth, activity and participation with the PTG domain of personal strength, this information may be used to impact aftercare programs to facilitate PTG. Future studies that emphasize a more targeted approach to assuring equal numbers of participants within the dimensions of acquired disabilities will provide a more robust discriminant analysis. This data and also that of future studies may

be used to design brochures and online training programs for people with acquired disability, that maximize the potential for growth after diagnosis. For educational settings, this information will create new efforts of inclusion for people with disability and transform current programs and activities that support this population both on and off campus.

References

Abreu, M., Hillier, A., Frye, A., & Goldstein, J. (2016). Student experiences utilizing disability support services in a university setting. *College Student Journal, 50*(3) 323-328. Accession number: 118727237

Ackroyd, K., Fortune, D. G., Price, S., Howell, S., Sharrack, B., & Isaac, C. L. (2011). Adversarial growth in patients with multiple sclerosis and their partners: Relationships with illness perceptions, disability and distress. *Journal of Clinical Psychology in Medical Settings, 18*(4), 372-379. doi: 10.1007/s10880-011-9265-0

Affleck, G., & Tennen, H. (1996). Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality, 64*(4), 899-922. doi:10.1111/1467-6494.ep9706272191

Ahlert, I. A., & Greeff, A. P. (2012). Resilience factors associated with adaptation in families with deaf or hard of hearing children. *American Annals of The Deaf, 157*(4), 391-404. doi:10.1353/aad.2012.1629

American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57*(12), 1060-1073. doi: 10.1037/0003-066X.57.12.1060

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders-TM.* (5th ed.). Washington, DC: Author.

American Psychological Association. (2017). Testing and assessment: Guideline 13. Retrieved from http://www.apa.org/pi/disability/resources/assessment-disabilities.aspx

Arpawong, T. E., Richeimer, S. H., Weinstein, F., Eighamrawy, A., & Milam, J. E. (2013). Posttraumatic growth, quality of life, and treatment symptoms among cancer chemotherapy outpatients. *Health Psychology, 32*(4), 397-408. doi:10.1037/a0028223

Aspinwall, L. G., & Tedeschi, R. G. (2010). The value of positive psychology for health psychology: Progress and pitfalls in examining the relation of positive phenomena to health. *Annals of Behavioral Medicine, 39,* 4-15. doi: 10.1007/s12160-009-9153-0

Bache, J., & Derwent, G. (2008). Access to computer-based leisure for individuals with profound disabilities. *NeuroRehabilitation 23*(4), 343-350. Retrieved from https://www.iospress.nl/journal/neurorehabilitation/

Baker, P., Bricout, J. C., Moon, N. W., Coughlan, B., and Pater, J. (2012). Communities of participation: A comparison of disability and aging identified groups on Facebook and LinkedIn. *Telematics and Informatics, 30,* 22-34. doi:10.1016/j.tele.2012.03.004

Baker, J. M., Kelly, C., Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2008). An examination of posttraumatic growth and posttraumatic depreciation: Two exploratory studies. *Journal of Loss and Trauma, 13,* 450-465. doi: 10.1080/15325020802171367

Barskova, T. & Oesterreich, R. (2009). Post-traumatic growth in people living with a serious medical condition and its relations to physical and mental health: A systematic review. *Disability Rehabilitation, 31*(21), 1709-1733. doi:

10.1080/09638280902738441

Bines, H., & Lei, P. (2011). Disability and education: The longest road to inclusion. *International Journal of Educational Development 31*(5), 419-424. doi:10.1016/j.ijedudev.2011.04.009

Bishop, M. (2012). Quality of life and psychosocial adaptation to chronic illness and acquired disability: A conceptual and theoretical synthesis. In Irmo Marini and Mark A. Stebnicki (Eds.), *The psychological and social impact of illness and disability* (6th ed.). (pp. 179-192). New York: Springer Publishing Company

Bogart, K. R. (2014). The role of disability self-concept in adaptation to congenital or acquired disability. *Rehabilitation Psychology*, *59*(1), 107-115. doi:10.1037/a0035800

Bottari, C., Gosselin, N., Guillemette, M., Lamoureux, J., & Ptito, A. (2011). Independence in managing one's finances after traumatic brain injury. *Brain Injury*, *25*(13-14), 1306-1317. doi:10.3109/02699052.2011.624570

Brault, M. W. (2012). Americans with disabilities: 2010 current population reports. *Current Population Reports.* Retrieved from http://www.census.gov/prod/2012pubs/p70-131.pdf

Bray, R. M., Engel, C. C., Williams, J., Jaycox, L. H., Lane, M. E., Morgan, J. K. and Unützer, J. (2016), Posttraumatic stress disorder in U.S. military primary care: Trajectories and predictors of one-year prognosis. *Journal of Traumatic Stress*, *29*: 340-348. doi:10.1002/jts.22119

Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2010). The posttraumatic growth model:

Socio-cultural considerations. In T. Weiss & R. Berger, (Eds.), *Posttraumatic growth and culturally competent practice: Lessons learned from around the globe.* (pp. 1-14). Hoboken, NJ: Wiley.

Calhoun, L. G., Cann, A., Tedeschi, R. G. and McMillan, J. (2000). A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress 13*(3), 521-527. doi: 10.1023/A:1007745627077

Calhoun, L. G., & Tedeschi, R. G. (2004). The foundations of posttraumatic growth: New considerations. *Psychological Inquiry, 15*(1), 93-102. doi: 10.1207/s15327965pli1501_03

Calhoun, L. G., & Tedeschi, R. G. (2013). *Posttraumatic growth in clinical practice.* New York, NY: Brunner Routledge.

Calhoun, L. G. & Tedeschi, R. G. (Eds.). (2014a). *Handbook of posttraumatic growth: Research and practice.* New York, NY: Psychology Press

Calhoun, L. G. & Tedeschi, R. G. (2014b). Foundations of posttraumatic growth. In Laurence Calhoun and Richard Tedeschi (Eds), *Handbook of posttraumatic growth: Research and practice.* (pp. 3-21). New York. NY: Psychology Press

Cann, A., Calhoun, L. G., Tedeschi, R. G., Kilmer, R. P., Gil-Rivas, V., Vishnevsky, T., & Danhauer, S. C. (2010). The Core Beliefs Inventory: A brief measure of disruption in the assumptive world. *Anxiety, Stress, & Coping, 23*(1), 19-34. doi: 10.1080/10615800802573013

Causes of deafblindness. (n.d.). *Canadian Deafblind Association-BC Chapter.* Retrieved

from http://www.cdbabc.ca/deafblindness/causes.html

Causes of hearing loss in adults. (n.d.). *American Speech-Language-Hearing Association.* Retrieved from http://www.asha.org/public/hearing/Causes-of-Hearing-Loss-in-Adults/

Centers for Disease Control and Prevention (2017a). *Disability and health data systems (DHDS).* Retrieved from http://www.cdc.gov/ncbddd/disabilityandhealth/dhds.html

Centers for Disease Control and Prevention (2017b). *Disability and health.* Retrieved from http://www.cdc.gov/ncbddd/disabilityandhealth/types.html

Cesar, S. D. (2014). *An examination of religious coping, spiritual coping, optimism, and psychological wellbeing as mediators of posttraumatic growth* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3621309)

Cimarolli, V. R., Boerner, K., Reinhardt, J. P., & Horowitz, A. (2013). Perceived overprotection, instrumental support and rehabilitation use in elders with vision loss: A longitudinal perspective. *Psychology & Health 28*(4), 369-383. doi:10.1080/08870446.2012.729835

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, L. H. Cimbolic, K., Armeli, S. R., & Hettler, T. R. (1998). Quantitative assessment of thriving. *Journal of Social Issues, 54*(2), 323-335. Retrieved from http://spssi.onlinelibrary.wiley.com/hub/journal/10.1111/(ISSN)1540-4560/

Collicutt, M. J., & Linley, P. A. (2006). Post-traumatic growth in acquired brain injury: A preliminary small scale study. *Brain Injury, 20*(7), 767-773. doi:10.1080/02699050600664566

Conductive hearing loss. (2017). *Hearing Loss Association of America.* Retrieved from http://www.hearingloss.org/content/types-causes-and-treatment

Cormio, C., Romito, F., Viscanti, G., Turaccio, M., Lorusso, V., & Mattioli, V. (2014). Psychological well-being and posttraumatic growth in caregivers of cancer patients. *Frontiers in Psychology, 5,* 1-8. doi.org/10.3389/fpsyg.2014.01342

Coroiu, A., Körner, A., Burke, S., Meterissian, S., & Sabiston, C. M. (2016). Stress and posttraumatic growth among survivors of breast cancer: A test of curvilinear effects. *International Journal of Stress Management, 23*(1), 84-97. doi:10.1037/a0039247

Correa, T., Hinsley, A. W., & Gil de Zúñiga, H. (2009). Who interacts on the Web?: The intersection of users personality and social media use. *Computers in Human Behavior, 25*(2), 248-253. doi: 10.1016/j.chb.2009.09.003

Corrigan, M. J., Jones, C. A., & McWhirter, J. J. (2001). College students with disabilities: An access employment group. *Journal for Specialists in Group Work, 26*(4), 339-349. doi: 10.1080/01933920108413783

Craig, A., Rodrigues, D., Tran, Y., Guest, R., Bartrop, R., & Middleton, J. (2014). Developing an algorithm capable of discriminating depressed mood in people with spinal cord injury. *Spinal Cord, 52*(5), 413-416. doi:10.1038/sc.2014.25

Crawford, J. J., Gayman, A. M., & Tracey, J. (2014). An examination of post-traumatic

growth in Canadian and American ParaSport athletes with acquired spinal cord injury. *Psychology of Sport and Exercise, 15*(4), 399-406. doi:10.1016/j.psychsport.2014.03.008

Cullen, N., Krakowski, A., & Taggart, C. (2014). Functional independence measure at rehabilitation admission as a predictor of return to driving after traumatic brain injury. *Brain Injury, 28*(2), 189-195. doi:10.3109/02699052.2013.862738

Davies, D. K., Stock, S. E., King, L. R., Brown, R. B., Wehmeyer, M. L., & Shogren, K. A. (2015). An interface to support independent use of Facebook by people with intellectual disability. *Intellectual and Developmental disabilities, 53*(1), 30-41. doi:10.1352/1934-9556-53.1.30

Davis, C. G., & Novoa, D. C. (2013). Meaning-making following spinal cord injury: Individual differences and within-person change. *Rehabilitation Psychology, 58*(2), 166-177. doi:10.1037/a0031554

Day, M. C. (2013). The role of initial physical activity experiences in promoting posttraumatic growth in Paralympic athletes with an acquired disability. *Disability and Rehabilitations: An International, Multidisciplinary Journal, 35*(24), 2064-2072. doi:10.3109/09638288.2013.805822

Day, M. C., & Wadey, R. (2016). Narratives of trauma, recovery, and growth: The complex role of sport following permanent acquired disability. *Psychology of Sport and Exercise, 22,* 131-138. doi:10.1016/j.psychsport.2015.07.004

De Luca, R., Calabro, R. S., Reitano, S., Digangi, G., Berte, F., Sergi, G., & Bramanti, P. (2014). Should individuals with chronic aphasia be treated with dedicated PC-

based training? Considerations about a case study. *Neurorehabilitation, 35*(4), 711-717. doi:10.3233/NRE-141175

De Montaigne, M. S., & Coste, P. (1685). Of constancy. In Peter Coste (Eds.), *The essays of Michael Seigneur de Montaigne, in 3 volumes, Vol. 1, 8th ed* (pp. 49-52). London: J Pote, E Ballard, C Bathurst, T Davies, T Payne, J F and C Rivington, S Crowder, and T Longman. doi:10.1037/11798-012

Delta Alpha Pi International Honor Society (2018). *Delta Alpha Pi international chapters.* Retrieved from http://deltaalphapihonorsociety.org/delta-alpha-pi-international-dapi-chapters/

Disability. (n.d.) Human diseases and conditions: Disability. Retrieved from http://www.humanillnesses.com/Behavioral-Health-Br-Fe/Disability.html

Dobransky, K., & Hargittai, E. (2006). The disability divide in Internet access and use. *Information, Communication and Society 9*(3), 313-334. doi:10.1080/13691180600751298

Domingo, M. C. (2011). An overview of the Internet of Things for people with disabilities. *Science Direct, 35*(2), 584-596. doi:10.1016/j.jnca.2011.10.015

Dong, S., & Lucas, M. S. (2016). An analysis of disability, academic performance, and seeking support in one university setting. *Career Development and Transition for Exceptional Individuals, 39*(1), 47-56. doi: 10.1177/21651434`3475658

Dorsett, P. (2010). The Importance of hope in coping with severe acquired disability. *Australian Social Work, 63*(1), 83-102. doi:10.1080/03124070903464293

Duarte Silva, A. P., & Stam, A. (2010). Discriminant analysis. In L. G. Grimm & P. R.

Yarnold (Ed.), *Reading and understanding multivariate statistics* (p. 277-316). Washington DC: American Psychological Association.

Duffy, B., Smith, K., Terhanian, G., & Bremer, J. (2005). Comparing data from online and face-to-face surveys. *International Journal of Market Research, 47*(6), 615-639. doi: 10.1177/147078530504700602

Durkin, J., & Joseph, S. (2009). Growth following adversity and its relation with subjective well-being and psychological well-being. *Journal of Loss & Trauma, 14*(3), 228-234. doi: 10.1080/15325020802540561

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168. doi: 10.1111/j.1083-6101.2007.00367.x

Escorpizo R., Finger, M. E., Glässel, A., Gradinger, F., Lückenkemper, M., & Cieza, A. (2011). A systematic review of functioning in vocational rehabilitation using the International Classification of Functioning, Disability and Health. *Journal of Occupational Rehabilitation, 21*(2), 134-146. doi:10.1007/s10926-011-9290-8

Facts about developmental disabilities. (n.d.). *Centers for Disease Control and Prevention.* Retrieved from https://www.cdc.gov/ncbddd/developmentaldisabilities/facts.html

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2016). G*Power Version 3.1.9.2 [computer software]. University Kiel, German. Retrieved from https://www.macupdate.com/app/mac/24037/g-power/download

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* (4th ed.). Thousand Oaks, CA: Sage Publishing.

Filipović, B., Filipović, B., Kerkez, M., Milinić, N., & Randelović, T. (2007). Depression and anxiety levels in therapy-naive patients with inflammatory bowel disease and cancer of the colon. World Journal of Gastroenterology, 13(3), 438-443. doi: 10.3748/wjg.v13.i3.438

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences.* (7th ed.). New York: Worth Publishers.

Frazier, P., Tashiro, T., Berman, M., Steger, M., & Long, J. (2004). Correlates of levels and patterns of positive life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 72,* 19-30. doi: 10.1037/0022-006X.72.1.19

Gamino, L. A., Sewell, K. W., Hogan, N. S., & Mason, S. L. (2009). Who needs grief counseling? A report from the Scott & White Grief Study. *Omega: Journal of Death and Dying, 60*(3), 199-223. doi:10.2190/OM.60.3.a

Garthus-Niegel, S., Knoph, C., Von Soest, T., Nielsen, C. S., & Eberhard-Gran, M. (2014). The role of labor pain and overall birth experience in the development of posttraumatic stress symptoms: A longitudinal cohort study. *Birth: Issues in Perinatal Care, 41*(1), 108-115. doi:10.1111/birth.12093

General Services Administration (2017). *Government-wide section 508 accessibility program.* Retrieved from https://www.section508.gov/

Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences, 102,* 74-78.

doi:10.1016/j.paid.2016.06.069

Giorgio, A., Stromillo, M. L., Bartolozzi, M. L., Rossi, F., Battaglini, M., De Leucio, A., Guidi, L., Maritato, P., Portaccio, E., Sormani, M. P., Amato, M. P., & De Stefano, N. (2013). Relevance of hypointense brain MRI lesions for long term worsening of clinical disability in relapsing multiple sclerosis. *Multiple Sclerosis Journal 20*(2), 214-219. doi:10.1177/1352458513494490

Glässel, A., Finger, M. E., Cieza, A., Treitler, C., Coenen, M., & Escorpizo, R. (2011). Vocational rehabilitation from the client's perspective using the International Classification of Functioning, Disability and Health (ICF) as a reference. *Journal of Occupational Rehabilitation, 21*(2), 167-178. doi: 10.1007/s10926-010-9277-x

Godwin, E., Chappell, B., & Kreutzer, J. (2014). Relationships after TBI: A grounded research study. *Brain Injury, 28*(4), 398-413. doi:10.3109/02699052.2014.880514

Grace, J. J., Kinsella, E. L., Muldoon, O. T., & Fortune, D. G. (2015). Post-traumatic growth following acquired brain injury: A systematic review and meta-analysis. *Frontiers in Psychology 6*(2015), 1162. doi:10.3389/fpsyg.2015.01162

Gradinger, F., Boldt, C., Hoal, B., & Cieza, A. (2011). Part 2. Identification of problems in functioning of persons with sleep disorders from the health professional perspective using the International Classification of Functioning, Disability and Health (ICF) as a reference: A worldwide expert survey. *Sleep Medicine, 12*(1), 97-101. doi:10.1016/j.sleep.2010.08.008

Gradinger, F., Glässel, A., Bentley, A., & Stucki, A. (2011). Content comparison of 115 health status measures in sleep medicine using the International Classification of

Functioning, Disability and Health (ICF) as a reference. *Sleep Medicine Reviews, 15*(1), 33-40. doi:10.1016/j.smrv.2010.07.001

Greene. R. R., Galambos, C., & Youjung, L. (2003). Resilience theory: Theoretical and professional conceptualizations. *Journal of Human Behavior in The Social Environment, 8*(4), 75-91. doi:10.1300/J137v08n04_05

Groleau, J. M., Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2012). The role of centrality of events inn posttraumatic distress and posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(5), 477-483. doi: 10.1037/a0028809

Guo, B., Bricout, J., & Huang, J. (2005). A common open space or a digital divide? A social model perspective on the online disability community in China. *Disability and Society, 20*, 49-66. doi: 10.1080/0968759042000283638

Hammond, F. M., Davis, C. S., Cook, J. R., Philbrick, P. & Hirsch, M. A. (2012). Relational dimension of irritability following traumatic brain injury: A qualitative analysis. *Brain Injury, 26*(11), 1287-1296. doi:10.3109/02699042.2012.706352

Hand, M. P. (2003). *Psychological resilience: The influence of positive and negative life events upon optimism, hope, and perceived locus of control* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3099937)

Harty, M., Griesel, M., and van der Merwe, A. (2011). The ICF as a common language for rehabilitation goal-setting: comparing client and professional priorities. (2011). Health & Quality of Life Outcomes, 9(1), 87-95. doi:10.1186/1477-7525-

9-87

Hernandez, C. L., Elliott, T. R., Berry, J. W., Underhill, A. T., Fine, P. R., & Lai, M. C. (2014). Trajectories of life satisfaction five years after medical discharge for traumatically acquired disability. *Rehabilitation Psychology*, doi:10.1037/a0035887

Hinton, P. R. (2004). *Statistics explained.* (2nd ed.). New York: Routledge Publishing.

Hitchings, W. E., Luzzo, D. A., Ristow, R., Horvath, M., Retish, P., & Tanners, A. (2001). The career development needs of college students with learning disabilities: In their own words. *Learning Disabilities Research & Practice, 16*(1), 8-17. doi: 10.1111/0938-8982.00002

Horn, S. R., Charney, D. S., & Feder, A. (2016). Understanding resilience: New approaches for preventing and treating PTSD. *Experimental Neurology 284*(B), 119-132. doi: 10.1016/j.expneurol.2016.07.002

Horswill, S. C., Desgagne, G., Parkerson, H. A., Carleton, N., & Asmundson, G. J. G. (2016). A psychometric evaluation of the hierarchical and oblique versions of five variants of the Posttraumatic Growth Inventory. *Psychiatry Research 246*, 438-446. doi: 10.1016/j.psychres.2016.10.027

Ilieva, J., Baron, S., & Healey, N. M. (2002). Online surveys in marketing research: Pros and cons. *International Journal of Market Research, 44*(3), 361-376. Retrieved from http://ezp.waldenulibrary.org/login?url=https://search-proquest-com.ezp.waldenulibrary.org/docview/214815221?accountid=14872

Iwasaki, Y., MacTavish, J., & MacKay, K. (2005). Building on strengths and resilience:

Leisure as a stress survival strategy. *British Journal of Guidance and Counseling 33*(1), 81-100. doi: 10.1080/03069880412331335894

Jaarsma, T. A., Pool, G., Sanderman, R., & Ranchor, A. V. (2006). Psychometric properties of the Dutch version of the posttraumatic growth inventory among cancer patients. *Psycho-Oncology, 15*(10), 911-920. doi: 10.1002/pon.1026

James, A. I., & Young, A. W. (2013). Clinical correlates of verbal aggression, physical aggression and inappropriate sexual behavior after brain injury. *Brain Injury, 27*(10), 1162-1172. doi:10.3109/02699052.2013.804200

Jayawickreme, E., & Blackie, L. E. R. (2014). Post-traumatic growth as positive personality change: Evidence, controversies and future directions. *European Journal of Personality, 28*(4), p. 312-331. doi: 10.1002/per.1963

Joseph, S., & Linley, P. A. (2005). Positive adjustment to threatening events: An organismic valuing theory of growth through adversity. *Review of General Psychology, 9*(3), 262-280. doi:10.1037/1089-2680.9.3.262

Joseph, S., & Williams, R., (2005). Understanding posttraumatic stress: Theory, reflections, context and future. *Behavioural and Cognitive Psychotherapy, 33*(4), 423-441. doi: 10.1017/S1352465805002328

Ju, S., Zhang, D., & Pacha, J. (2012). Employability skills valued by employers as important for entry-level employees with and without disabilities. *Career Development and Transition for Exceptional Individuals, 25*(1), 29-38. doi: 10l.1177/0885728811419167

Kaler, M. E., Erbes, C. R., Tedeschi, R. G., Arbisis, P. A., & Polusny, M. A. (2011).

Factor structure and concurrent validity of the Posttraumatic Growth Inventory-Short form among veterans from the Iraq war. *Journal of Traumatic Stress, 24,* 200-207. doi: 10.1002/jts.20623

Kaplan, K., Salzer, M. S., Solomon, P., Brusilovskiy, E., & Cousounis, P. (2011). Internet peer support for individuals with psychiatric disabilities: A randomized controlled trial. *Social Science & Medicine, 72*(1), 54-62. doi:10.1016/j.socscimed.2010.09.037

Kanel, K. (2007). *A guide to crisis intervention* (3rd ed.). Belmont, CA: Brooks/Cole, Cengage Learning.

Kegel, J., Dux, M., & Macko, R. (2014). Executive function and coping in stroke survivors. *Neurorehabilitation, 34*(1), 55-63. doi:10.3233/NRE-131010

Kensit, D. (2000). Rogerian theory: A critique of the effectiveness of pure client-centered therapy. *Counselling Psychology Quarterly, 13*(4), 345-351. doi:10.1080/09515070110046551

King, L. A., & Raspin, C. (2004). Lost and found possible selves, subjective well-being, and ego development in divorced women. *Journal of Personality, 72,* 603-632. doi: 10.1111/j.0022-3506.2004.00274x

Kitzmuller, G., & Ervik, B. (2015). Female spouses' perceptions of the sexual relationship with stroke-affected partners. *Sexuality and Disability, 33*(4), 499-512. doi:10.1007/s11195-015-9404-x

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: Guilford Press.

Knox, L., Douglas, J. M., & Bigby, C. (2015). 'The biggest thing is trying to live for two people': Spousal experiences of supporting decision-making participation for partners with TBI. *Brain Injury, 29*(6), 745-757. doi:10.3109/02699052.2015.1004753

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*(1), 1-11. doi:10.1037/0022-3514.37.1.1

Kobasa, S., Maddi, S., & Courington, S. (1981). Personality and constitution as mediators in the stress-illness relationship. *Journal of Health and Social Behavior 22,* 368-378. doi: 10.2307/2136678

Kuenemund, A., Zwick, S., Rief, W., & Exner, C. (2016). (Re-)defining the self-enhanced posttraumatic growth and event centrality in stroke survivors: A mixed-method approach and control comparison study. *Journal of Health Psychology, 21*(5), 679-689. doi:10.1177/1359105314535457

Kushalnagar, P., McKee, M., Smith S. R., Hopper, M., Kavin, D., & Atcherson, S. R. (2014). Conceptual model for quality of life among adults with congenital or early deafness. *Disability and Health Journal, 7*(3), 350-355. doi:10.1016/j.dhjo.2014.04.001

Lambert, V. A., Lambert, C. J., & Yamase, H. (2003). Psychological hardiness, workplace stress and related stress reduction strategies. *Nursing & Health Sciences, 5*(2), 181-184. doi:10.1046/j.1442-2018.2003.00150.x

Lamela, D., Figueiredo, B., Bastos, A., Martins, H. (2014). Psychometric properties of

the Portuguese version of the Posttraumatic Growth Inventory Short Form among divorced adults. *European Journal of Psychological Assessment 30*(1), 3-14. doi: 10.1027/1015-5759/a000161

LaPlante, M. P., & Carlson, D. (1996). Disability in the United States: Prevalence and causes. *National Institute on Disability and Rehabilitation Research.* Retrieved from http://files.eric.ed.gov/fulltext/ED400635.pdf

Leading causes of blindness. (2008). *National Institutes of Health MedlinePlus*, *3*(3, 14-15. Retrieved from https://medlineplus.gov/magazine/issues/summer08/articles/summer08pg14-15.html

Lexell J., & Brogardh, C. (2015). The use of ICF in the neurorehabilitation process. *Neurorehabilitation, 36*(1), 5-9. doi: 10.3233/NRE-141184

Linder, S. K., Swank, P. R., Vernon, S. W., Morgan, R. O., Mullen, P. D., & Volk, R. J. (2010). Is a prostate cancer screening anxiety measure invariant across two different samples of age-appropriate men? *BMC Medical Informatics and Decision Making, 12,* 52. doi:10.1186/1472-6947-12-52

Lindstrom, C. M., Cann, A., Calhoun, L. G., & Tedeschi, R. G. (2011). The relationship of core belief challenge, rumination, disclosure, and sociocultural elements to posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy, 4,* 400-410. doi: 10.1037/a0022030

Linley, P. A., & Joseph, S. (2005). The human capacity for growth through adversity. *American Psychologist, 60*(3), 262-264. doi:10.1037/0003-066X.60.3.262b

Linton, S. J., Hellsing, A., & Bryngelsson, I. (2000). Psychosocial and functional risk factors in the early stages of back pain: Effects on moderate pain. *International Journal of Behavioral Medicine, 7*(4), 291-302. doi:1207/S15327558IJBM0704_02

Mack, J., Herrberg, M., Hetzel, A., Wallesch, C. W., Bengel, J., Schulz, M., Rohde, N., & Schönberger, M. (2015). The factorial and discriminant validity of the German version of the Posttraumatic Growth Inventory in stroke patients. *Neuropsychological Rehabilitation, 25*(2), 216-232. doi:1080/09602011.2014.918885

Marino, R., Linton, N., Elkelboom, R. H., Statham, E., & Rajan, G. P. (2013). A comparative study of hearing aids and round window application of the vibrant sound bridge (BSB) for patients with mixed or conductive hearing loss. *International Journal of Audiology, 52*(4), 209-218. doi:10.3109/14992027.2012.750431

Martin, L. M., & Tesser, A. (1996). Clarifying our thoughts. In R. S. Kyer (Ed.), Ruminative thoughts: Advances in social cognition (pp. 189-209). Mahwah, NI: Lawrence Erlbaum Associates, Publishers.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227-238. doi:10.1037//0003-066X.56.3.227

McCarthy, D. E. (2013). The existential psychology of possibility: Stress, hardiness and posttraumatic growth. *PsycCritiques, 58*(25), doi:10.1037/10034350

McFarland, C., & Alvaro, C. (2000). The impact of motivation on temporal comparisons:

Coping with traumatic events by perceiving personal growth. *Journal of Personality and Social Psychology, 79,* 327-343. doi: 10.1037/0022-3514.79.3.327

Mertler, C. A., & Reinhart, R. V. (2017). *Advanced and multivariate statistical methods: Practical application and interpretation* (6th ed.). New York: Routledge Publishing.

Michna, J. (2013). *A qualitative exploration of the corrective emotional experience in posttraumatic growth* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3588613)

Min, J., Lee, C., Hwang, S., Shin, J., Lee, B., Han, S., Ju, H., Lee, C. Y., Lee, C., & Chae, J. (2014). The moderation of resilience on the negative effect of pain on depression and post-traumatic growth in individuals with spinal cord injury. *Disability and Rehabilitation: An International, Multidisciplinary Journal, 36*(14), 1196-1202. doi:10.3109/09638288.2013.834985

Morrill, E., Brewer, N. T., O'Neill, S. C., Lillie, S. E., Dees, E., Carey, L. A., & Rimer, B. K. (2008). The interaction of post-traumatic growth and post-traumatic stress symptoms in predicting depressive symptoms and quality of life. *Psycho-Oncology, 17*(9), 948-953. doi:10.1002/pon.1313

Morris, B. A., & Shakespeare-Finch, J. (2011). Rumination, post-traumatic growth, and distress: Structural equation modeling with cancer survivors. *Psycho-Oncology, 20*(11), 1176-1183. doi:10.1002/pon.1827

Nierenberg, B., Mayersohn, G., Serpa, S., Holovatyk, A., Smith, E., & Cooper, S. (2016).

Application of well-being therapy to people with disability and chronic illness. *Rehabilitation Psychology, 61*(1), 32-43. doi:10.1037/rep0000060

Olze, H., Szczepek, A. J., Haupt, H., Zirke, N., Graebel, S., & Mazurek, B. (2012). The impact of cochlear implantation on tinnitus, stress and quality of life in postlingually deafened patients. *Audiology & Neurotology, 17*(1), 2-11. doi:10.1159/000323847

Obst, P., & Stafurik, J. (2010). Online we are all able bodied: Online psychological sense of community and social support found through membership of disability-specific websites promotes well-being for people living with a physical disability. *Journal of Community & Applied Social Psychology, 20*(6), 525-531. doi:10.1002/casp.1067

Olkin, R. (2002). Could you hold the door for me? Including disability in diversity. *Cultural Diversity and Ethnic Minority Psychology, 8*(2), 130-137. doi:10.1037/1099-9809.8.2.130

O'Rourke, J. F., Tallman, B. A., & Altmaier, E. M., (2008). Measuring post-traumatic changes in spirituality/religiosity. *Mental Health, Religion & Culture 11*(7), 719-728. doi:10.1080/13674670801993336

Pachler, I. (2013). *Relationship between emotional intelligence and personal growth after divorce in adult online university students* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3560908)

Park, C. L., & Ai, A. L. (2006). Meaning making and growth: New directions for research on survivors of trauma. *Journal of Loss and Trauma, 11*(5), 389-407.

doi:10.1080/15324020600685295

Pengilly, J. W., & Dowd, E. T. (2000). Hardiness and social support as moderators of stress. *Journal of Clinical Psychology, 56*(6), 813-820. doi: 10.1002/(SICI)1097-4679

Perkes, S. J., Bowman, J., & Penkala, S. (2014). Psychological therapies for the management of co-morbid depression following a spinal cord injury: A systematic review. *Journal of Health Psychology, 19*(12), 1597-1612. doi:10.1177/1359105313496445

Polat, F., (2011). Inclusion in education: A step towards social justice. *International Journal of Educational Development 31*(5), 50-58. doi:10.1016/j.ijedudev.2010.06.009

Pollard, C., & Kennedy, P. (2007). A longitudinal analysis of emotional impact, coping strategies and post-traumatic psychological growth following spinal cord injury: A 10-year review. *British Journal of Health Psychology, 12*, 347-362. doi:10.1348/135910707X197046

Powell, T., Gilson, R., & Collin, C. (2012). TBI 13 years on: Factors associated with post-traumatic growth. *Disability and Rehabilitation: An International, Multidisciplinary Journal*, *34*(17), 1461-1467. doi:10.3109/09638288.2011.644384

Prati, G. & Pietrantoni, L. (2014). Italian adaptation and confirmatory factor analysis of the full and the short form of the Posttraumatic Growth Inventory. *Journal of Loss and Trauma, 19*(1), 12-22. doi: 10.1080/15325024.2012.734203

Pringle, J., Drummond, J. S., & McLafferty, E. (2013). Revisioning, reconnecting and revisiting: The psychosocial transition of returning home from hospital following a stroke. *Disability and Rehabilitation: An International, Multidisciplinary Journal, 35*(23), 1991-1999. doi:10.3109/09638288.2013.770081

Prodinger, B., Shaw L., van Bruggen, H., Glässel, A., Rauch, A., Selb, M., Emmenegger, K., Lückenkemper, M., & Escorpizo, R. (2012). A case study on the application of International Classification of Functioning, Disability and Health (ICF)-based tools for vocational rehabilitation in spinal cord injury. Work, 41(4), 465-474. doi: 10.3233/WOR-2012-1310

Psarra, E., & Kleftaras, G. (2013). Adaptation to physical disabilities: The role of meaning in life and depression. *The European Journal of Counselling Psychology, 2*(1), 79-99. doi:http://dx.doi.org/10.5964/ejcop.v2i1.7

Purc-Stephenson, R. J. (2014). The Posttraumatic Growth Inventory: Factor structure and invariance among persons with chronic diseases. *Rehabilitation Psychology, 59*(1), 10-18. doi:10.1037/a0035353

Raggi, A., Leonardi, M., Covelli, V., Sattin, D., Scaratti, C., Schiavolin, S., & Meucci, P. (2015). The ICF as a framework to collect and interpret data on the extent and variety of disability in neurological conditions. *Neurorehabilitation, 36*(1), 17-22. doi: 10.3233/NRE-141186

Reinfeldt, S., Hakansson, B., Taghavi, H., Jansson, K. F., & Eeg-Olofsson, M. (2015). The bone conduction implant: Clinical results of the first six patients. *International Journal of Audiology, 54*(6), 408-416.

doi:10.3109/14992027.2014.996826

Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology, 58*(3), 307-321. doi: 10.1002/jclp.10020

Ritchie, H., & Blanck, P. (2003). The promise of the Internet for disability: A study of online services and web site accessibility at centers for independent living. *Behavioral Science Law 21*, 5-22. doi: 10.1002/bsl.520

Riva, G., Teruzzi, T., & Anolli, L. (2003). The use of the Internet in psychology research: Comparison of online and offline questionnaires. *Cyberpsychology & Behavior, 6*(1), 73-80. doi:10.1089/109493103321167983

Rogan, C., Fortune, D. G., & Prentice, G. (2013). Post-traumatic growth, illness perceptions and coping in people with acquired brain injury. *Neuropsychological Rehabilitation, 23*(5), 639-657. doi:10.1080/09602011.2013.799076

Rogers, C. R. (1964). Toward a modern approach to values: The valuing process in the mature person. *Journal of Abnormal and Social Psychology, 68*, 160-167. doi: 10.1037/h0046419

Ross, C., Orr, E. S., Sisic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior, 25*(2), 578-586. doi: 10.1016/j.chb.2008.12.024

Runswick-Cole, K., & Goodley, D. (2013). Resilience: A Disability Studies and Community Psychology Approach. *Social & Personality Psychology Compass, 7*(2), 67-78. doi:10.1111/spc3.12012

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal*

of Orthopsychiatry, 57(3), 316-331. doi:10.1111/j.1939-0025.1987.tb03541.x

Scrignaro, M., Barni, S., & Magrin, M. (2011). The combined contribution of social support and coping strategies in predicting post-traumatic growth: A longitudinal study on cancer patients. *Psycho-Oncology*, *20*(8), 823-831. doi:10.1002/pon.1782

Shakespeare-Finch, J., Martinek, E., Tedeschi, R. G., & Calhoun, L. G. (2013). A qualitative approach to assessing the validity of the Posttraumatic Growth Inventory. *Journal of Loss and Trauma, 18*(6), 572-591. doi: 10.1080/15325024.2012.734207

Sheikh, A. A., & Marotta, S. A. (2005). A cross-validation study of the Posttraumatic Growth Inventory. *Measurement & Evaluation in Counseling & Development (American Counseling Association), 38*(2), 66-77. doi: 10.1080/07481756.2005.11909769

Shoham, S., & Heber, M. (2012). Characteristics of a virtual community for individuals who are D/deaf and hard of hearing. *American Annals of The Deaf, 157*(3), 251-263. doi:10.1353/aad.2012.1625

Shpigelman, C., & Gill, C. J. (2014). Facebook use by persons with disabilities. *Journal of Computer-Mediated Communication, 19*(3), 610-624. doi:10.1111/jcc4.12059

Stein, K. F. (2013). DSS and accommodations in higher education: Perceptions of students with psychological disabilities. *Journal of Postsecondary Education and Disability, 26*(2), 145-161. Retrieved from https://www.ahead.org/professional-resources/publications/jped/archived-jped/jped-volume-26

Stutts, L. A. & Stanaland, A. W. (2016). Posttraumatic growth in individuals with amputations. *Disability and Health Journal, 9*(1), 167-171. doi:10.1016/j.dhjo.2015.07.005

SurveyMonkey, Inc. (2017). https://www.surveymonkey.com/

SurveyMonkey, Inc. (2017). SSL Encryption. Retrieved from https://help.surveymonkey.com/articles/en_US/SurveyMonkeyArticleType/What-is-the-enhanced-security-option-SSL-encryption

Symptoms and causes. (n.d.). *Mayo Clinic Patient Care & Health Information: Multiple Sclerosis.* Retrieved from http://www.mayoclinic.org/diseases-conditions/multiple-sclerosis/symptos-causes/dxc-20131884

Tabachnick, B. G. & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). New York: Allyn and Bacon.

Taku, K., Calhoun, G. B., Tedeschi, R. G., Gil-Rivas, V., Kilmer, R. P., & Cann, A. (2007). Examining posttraumatic growth among Japanese university students. *Anxiety, Stress and Coping 20*, 353-367. doi: 10.1080/10615800701295007

Taku, K., Cann, A., Calhoun, L. G., & Tedeschi, R. G. (2008). The factor structure of the Posttraumatic Growth Inventory: A comparison of five models using confirmatory factor analysis. *Journal of Traumatic Stress, 21*(2), 158-164. doi: 10.1002/jts.20305

Taku, K., Cann, A., Tedeschi, R. G., & Calhoun, L. G. (2015). Core beliefs shaken by an earthquake correlate with posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy, 7*(6), 563-569. doi: 10.1037/tra0000054

Tanis, E. S., Palmer, S., Wehmeyer, M., Davies, D. K., Stock, S. E., Lobb, K., & Bishop, B. (2012). Self-report computer-based survey of technology use by people with intellectual and developmental disabilities. *Intellectual and Developmental Disabilities 50*(1), 53-68. doi:10.1352/1934-9556-50.1.53

Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist, 38*(11), 1161-1173. doi:10.1037/0003-066X.38.11.1161

Tedeschi, R. G., & Blevins, C. L. (2015). From mindfulness to meaning: Implications for the theory of posttraumatic growth. *Psychological Inquiry, 26,* 373-376. doi: 10.1080/1047840X.2015.1075354

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9,* 455-471. doi: 10.1002/jts.2490090305

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry 15*(1), 1-18. doi: 10.1207/s15327965pli1501_01

Tedeschi, R. G., & Calhoun, L. G. (2006). Time of change? The spiritual challenges of bereavement and loss. *Omega, 53,* 105-116. Retrieved from http://journals.sagepub.com/toc/omea/53/1

Tedeschi, R., G., Calhoun, L. G., & Engdahl, B. E. (2001). Opportunities for growth in survivors of trauma. *National Center for PTSD Clinical Quarterly, 10,* 23-25. Retrieved from https://www.ptsd.va.gov/professional/publications/ptsd-rq.asp

Tedeschi, R. G., Calhoun, L. G., & Groleau, J. M. (2015). Clinical applications of

posttraumatic growth. In S. Joseph (Ed.), *Positive psychology in practice: Promoting human flourishing in work, health, education and everyday life.* Hoboken, NJ: Wiley.

Tedeschi, R. G., & Kilmer, R. P. (2005). Assessing strengths, resilience, and growth to guide clinical interventions. *Professional Psychology: Research and Practice, 36*(3), 230-237. doi:10.1037/0735-7028.36.3.230

Tennen, H., & Affleck, G. (2002). Benefit-finding and benefit-reminding. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (584-597). London: Oxford University Press.

Thomas, E., & Savoy, S. (2014). Relationships between traumatic events, religious coping style, and posttraumatic outcomes. *Traumatology: An International Journal 20*(2), 84-90. doi:10.1037/h0099380

Tomich, P. L., & Helgeson, V. S. (2004). Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychology, 23*, 16-23. doi: 10.1037/0278-6133.23.1.16

Triplett, K. N., Tedeschi, R. G., Cann, A., Calhoun, L. G., & Reeve, C. L. (2012). Posttraumatic growth, meaning in life, and life satisfaction in response to trauma. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*, 400-410. doi: 10.1037/a0024204

Tuncay, T., & Musabak, I. (2015). Problem-focused coping strategies predict posttraumatic growth in veterans with lower-limb amputations. *Journal of Social Service Research, 41*(4), 466-483. doi:10.1080/01488376.2015.1033584

Tunks, E., & Bellissimo, A. (1988). Coping with the coping concept: A brief comment. *The Journal of Pain 34*(2), 171-174. doi: 10.1016/0304-3959(88)0-162-5

United States Department of Education. (2018). *Students with disabilities: How many students in postsecondary education have a disability?* Retrieved from https://nces.ed.gov/fastfacts/display.asp?id=60

United States Department of Labor. (2017). *Diverse perspectives: People with disabilities fulfilling your business goals.* Retrieved from https://www.dol.gov/odep/pubs/fact/diverse.htm

Vash, C. L. & Crewe, N. M. (2004). *The psychology of disability* (2nd ed.). New York: Springer Publishing Company, Inc.

Velstra, I., Curt, A., Frotzler, A., Abel, R., Kalsi-Ryan, S., Rietman, J. S., & Bolliger, M. (2015). Changes in strength, sensation, and prehension in acute cervical spinal cord injury: European multicenter responsiveness study of the GRASSP. *Neurorehabilitation and Neural Repair, 29*(8), 775-766. doi:10.1177/1545968314565466

Vishnevsky, T., Cann, A., Calhoun, L. G., Tedeschi, R. G., & Demakis, G. J. (2010). Gender differences in self-reported posttraumatic growth: A meta-analysis. *Psychology of Women Quarterly,* (1), 110. doi: 10.1111/j.1471-6402.2009.01546x

Vosner, H. B., Bobek, S., Kokol, P., & Krecic, M. J. (2016). Attitudes of active older internet users towards online social networking. *Computers in Human Behavior, 55*(Part A), 230-241. doi:10.1016/j.chb.2015.09.014

Weiser, E. B. (2000). Gender differences in Internet use patterns and Internet application

preferences: A two-sample comparison. *CyberPsychology & Behavior 3:167-177.* doi: 10.1089/109493100316012

What is posttraumatic growth? (n.d.). *Posttraumatic Growth Research Group.* Retrieved from https://ptgi.uncc.edu/what-is-ptg/

Wirz, M., & Dietz, V. (2015). Recovery of sensorimotor function and activities of daily living after cervical spinal cord injury: The influence of age. *Journal of Neurotrauma 32*(3), 194-199. doi:10.1089/neu.2014.3335

World Health Organization (2013). *How to use the ICF: A practical manual for using the International classification of functioning, disability and health (ICF).* Geneva: World Health Organization.

World Health Organization (2001). *International classification of functioning, disability and health: ICF short version.* Geneva: World Health Organization.

Wortman, C. B. (2004). Posttraumatic growth: Progress and problems. *Psychological Inquiry, 15,* 81-90. Retrieved from http://www.jstor.org/staqble/20447207

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10*(3), 00-00. doi:10.1111/j.1083-6101.2005.tb00259.x

Yi, J., Zebrack, B., Kim, M. A., & Cousino, M. (2015). Posttraumatic growth outcomes and their correlates among young adult survivors of childhood cancer. *Journal of Pediatric Psychology, 40*(9), 981-991. doi:10.1093/jpepsy/jsv075

Yu, J., Rawtaer, I., Mahendran, R., Kua, E., & Feng, L. (2017). Degree, but not direction

of grip strength asymmetries, is related to depression and anxiety in an elderly population. *Laterality: Asymmetries of Body, Brain and Cognition*, *22*(3), 268-278. doi:10.1080/1357650X.2016.1184677

Appendix A: Facebook Research Study Page

Hello and welcome to my Facebook page and study about acquired disability and posttraumatic growth. I am a doctoral candidate at Walden University and this research study is part of my final coursework towards a Ph.D. in General Psychology—Teaching Option. The purpose of this study is to determine if individuals who self-identify as an adult now living with an acquired disability experience posttraumatic growth, or positive change after a traumatic life event such as the diagnosis of an acquired disability.

I invite you to participate in this study; however, participation is voluntary. Participants must be at least 18 years of age, able to read and write English, and have access to the Internet. Participants must be at least 12-months post-diagnosis of an acquired disability as outlined by the three dimensions of acquired disability from the World Health Organization (this information provided within the study itself).

Minimal risks are involved in participation. Risks may include the emotional process of determining how acquired disability has changed your life in any of five areas using the Posttraumatic Growth Inventory. The benefits of participation include that same process; however, recognition of the positive changes that have become a part of your life since diagnosed with acquired disability.

Should you wish to voluntarily participate in this research study about posttraumatic growth and acquired disability, you may click on the following link and it will direct you to the first page of the study. https://www.surveymonkey.com/r/BFBP2F3

You are encouraged to share this Facebook page with others who also live with acquired disability. This may include Facebook "friends" as well as closed groups of which you are a member that are specifically set up to provide support and encouragement for individuals who share common diagnoses. You are also encouraged to share this Facebook page with any online message boards, support groups, or blogs to share the opportunity with others who live with acquired disability.

Thank you for your time and willingness to share this opportunity with others who live with acquired disability.

L. Denise Portis, M.A.
Doctoral candidate, General Psychology—Teaching Option
Walden University

Appendix B: Email Invitation

I would like to invite you and your contacts an opportunity to participate in a study about acquired disability and posttraumatic growth. I am a doctoral candidate at Walden University and this research study is part of my final coursework towards a Ph.D. in General Psychology—Teaching Option. The purpose of this study is to determine if individuals who self-identify as an adult now living with an acquired disability experience posttraumatic growth, or positive change after a traumatic life event such as the diagnosis of an acquired disability.

I invite you to participate in this study; however, participation is voluntary. Participants must be at least 18 years of age, able to read and write English, and have access to the Internet. Participants must be at least 12-months post-diagnosis of an acquired disability as outlined by the three dimensions of acquired disability from the World Health Organization (this information provided within the study itself).

Minimal risks are involved in participation. Risks may include the emotional process of determining how acquired disability has changed your life in any of five areas using the Posttraumatic Growth Inventory. The benefits of participation include that same process; however, recognition of the positive changes that have become a part of your life since diagnosed with acquired disability.

Should you wish to voluntarily participate in this research study about posttraumatic growth and acquired disability, you may click on the following link and it will direct you to the first page of the study. https://www.surveymonkey.com/r/BFBP2F3

You are encouraged to share this invitation with others who also live with acquired disability. Potential participants may also know me as a disability advocate and Vice-chair of the Anne Arundel County Commission on Disability Issues, a part-time psychology instructor at Anne Arundel Community College, an Online disability blogger at Hearing Elmo, a client/mentor at Fidos For Freedom, Inc., or as a participant of Online disability communities. None of these roles are connected to this study, and the survey information is separate from these roles and used solely as part of a dissertation study.

Thank you for your time and willingness to share this opportunity with others who live with acquired disability.

L. Denise Portis, M.A.
Doctoral candidate, General Psychology—Teaching Option
Walden University

Appendix C: Eligibility Questionnaire and Information Sheet

All information will remain confidential.

1. Please indicate if you are at least 18 years of age: Yes ____ No ____
2. Please indicate if you can read and write English: Yes ____ No ____
3. Please indicate if you have access to the Internet: Yes ____ No ____
4. Please indicate if you are at least 12-months post diagnosis after an illness, accident, or life event that created an acquired disability as one of your life challenges: Yes ____ No ____

Appendix D: Posttraumatic Growth Inventory

Indicate for each of the statements below the degree to which this change occurred in your life as a result of having an acquired disability using the following scale.

0= I did not experience this change as a result of my acquired disability.
1= I experienced this change to a very small degree as a result of my acquired disability.
2= I experienced this change to a small degree as a result of my acquired disability.
3= I experienced this change to a moderate degree as a result of my acquired disability.
4= I experienced this change to a great degree as a result of my acquired disability.
5= I experienced this change to a very great degree as a result of my acquired disability.

	Did Not Experience	Very Small Degree	Small Degree	Moderate Degree	Great Degree	Very Great Degree
1. I changed my priorities about what is important in life.	0	1	2	3	4	5
2. I have a greater appreciation for the value of my own life.	0	1	2	3	4	5
3. I developed new interests.	0	1	2	3	4	5
4. I have a greater feeling of self-reliance.	0	1	2	3	4	5
5. I have a better understanding of spiritual matters.	0	1	2	3	4	5
6. I more clearly see that I can count on people in times of trouble.	0	1	2	3	4	5
7. I established a new path for my life.	0	1	2	3	4	5
8. I have a greater sense of closeness with others.	0	1	2	3	4	5

9. I am more willing to express my emotions	0	1	2	3	4	5
10. I know better that I can handle difficulties.	0	1	2	3	4	5
11. I am able to do better things with my life.	0	1	2	3	4	5
12. I am better able to accept the way things work out.	0	1	2	3	4	5
13. I can better appreciate each day.	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
15. I have more compassion for others.	0	1	2	3	4	5
16. I put more effort into my relationships.	0	1	2	3	4	5
17. I am more likely to try to change things which need changing.	0	1	2	3	4	5
18. I have a stronger religious faith	0	1	2	3	4	5
19. I discovered that I'm stronger than I thought I was.	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are.	0	1	2	3	4	5
21. I better accept needing others.	0	1	2	3	4	5

Tedeschi, R.G., & Calhoun, L.G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma., *Journal of Traumatic Stress, 9*, 455-471.

Appendix E: Permission to use Published Posttraumatic Growth Inventory

Copy of email exchange:

Request permission of PTGI for nonprofit, academic use Inbox x

Linda Portis Jan 4
to posttraumaticG.

Good afternoon,

I am in the proposal stage of my dissertation at Walden University, studying to earn a Ph.D. in General Psychology--Teaching Option. My dissertation, " Discriminant Profile of Dimensions of Acquired Disability on Domains of Posttraumatic Growth", will be using the PTGI with your permission and delivered copy of this scale. My current dissertation timeline will have the completed proposal at the end of the spring quarter at Walden, with collection of data beginning summer of 2017.

I respectfully request use of the PTGI for this nonprofit, academic endeavor.

Sincerely,

Linda DENISE Portis
EST

Posttraumatic Growth <posttraumaticgrowth@uncc.edu> (sent by plewis19@uncc.edu) Jan 6
to me

Hello Ms. Portis,

You have our permission to use the PTGI as part of your dissertation. Attached you will find copies of all of our scales, and we hope they will be of use to you! Thank you for your interest.

Warm regards,

Posttraumatic Growth Research Center
UNC Charlotte
Department of Psychology
9201 University City Blvd
Charlotte, NC 28223-0001 USA
Lawrence G. Calhoun
Richard G. Tedeschi
Arnie Cann
www.ptgi.uncc.edu
http://www.routledgementalhealth.com/books/details/9780415645300/

W PTGI and Other S...

Appendix F: Self-identification in One of Three Dimensions of Acquired Disability

The World Health Organization classifies acquired disability into three dimensions and outlined in the International Classification of Functioning, Disability and *Health* (WHO, 2001). Many individuals with acquired disability may have more than one diagnosis and find that they may identify with more than one dimension of acquired disability. For the purpose of this study, please read the descriptions of each dimension carefully and choose only one dimension. If you self-identify as a person with more than one dimension, choose the one that has the greatest impact on your life. Place an X or checkmark in the space provided to indicate which dimension has the greatest impact on your life.

First dimension: Impairment in Body Function _____

The World Health Organization (WHO, 2001) describes this dimension of acquired disability as an impairment in body functions that may include one or more of the following:

Reduced cognitive function, sensory function (which would include any of the five senses), voice and speech function, or impairment due to pain.

Reduced function in cardiovascular, respiratory, immunological, digestive and endocrine, reproductive functions, and functions of the skin.

Reduced function that includes neuromusculoskeletal and movement-related functions such as muscles and motor reflex.

Second dimension: Impairment in Body Structure _____

This is described as impairment in the structures of the eyes and ears, structures to produce speech, and structures that provide movement (WHO, 2001) and include:

Surgical or accidental removal of or damage to structures of the eyes and ears. (Example tumors).

Impairment of vocal cords due to surgery or accidental trauma.

Impairment of structures that provide movement such as paralysis and amputations.

Third dimension: Impairment in Growth, Activity, and Participation in Normal Life Activities _____

The World Health Organization (2001) details the impairment descriptions in this dimension as:

Reduced ability or impairment in learning and applying knowledge, communicating, changing and maintaining body position, carrying, moving, and handling objects, walking and moving, ability to use transportation, self-care functional impairments, domestic life tasks, and interpersonal interactions.

Appendix G: Protecting Human Research Participants Training Certificate

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Linda Portis** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 03/22/2014.

Certification Number: 1429684.

Appendix H: Study Summary and Exit Information

The questions and survey you completed will be analyzed to discover if posttraumatic growth (PTG) occurs in specific domains and discriminate the dimensions of acquired disability (as outlined by the WHO). The purpose of this survey research is to (a) identify the extent to which individuals with acquired disability experience PTG, (b) determine if specific dimensions of acquired disability are more likely to score high in specific domains of PTG, and (c) determine if specific dimensions of acquired disability are more likely to score low in specific domains of PTG. Should specific dimensions of acquired disability be associated with high or low scores in the five domains of PTG, the discriminant function analysis may produce support for decisions in effective aftercare and social support programs to assist individuals with newly acquired disabilities. Medical and mental health professionals, rehabilitation specialists, support groups, and those within the social network of the person with acquired disability may work to strengthen activities and growth by identifying specific dimensions of acquired disability that are known to score low in specific domains of PTG.

Should you wish to discover more about PTG, you are encouraged to visit the Posttraumatic Growth Research Group at the following link: https://ptgi.uncc.edu

The following website lists a number of crisis hotlines within the U.S.A. that are available 24/7: https://psychcentral.com/lib/common-hotline-phone-numbers/

Individuals with acquired disability may benefit from face-to-face or online support groups. Information about these free services can be found at this link: https://www.verywell.com/support-groups-for-the-disabled-1094573