

DEVELOPMENT AND INITIAL VALIDATION OF THE BRIEF TRAUMA RESILIENCY  
SCALE

A Dissertation

by

JOE MICHAEL AYALA

BA, Texas A&M University- Corpus Christi, 2013  
MA, Texas A&M University- Corpus Christi, 2017

Submitted in Partial Fulfillment of the Requirements for the Degree of

DOCTOR OF PHILOSOPHY

in

COUNSELOR EDUCATION

Texas A&M University-Corpus Christi  
Corpus Christi, Texas

August 2020

© Joe Michael Ayala

All Rights Reserved

August 2020

DEVELOPMENT AND INITIAL VALIDATION OF THE BRIEF TRAUMA RESILIENCY  
SCALE

A Dissertation

by

JOE MICHAEL AYALA

This dissertation meets the standards for scope and quality of  
Texas A&M University-Corpus Christi and is hereby approved.

Dr. Robert L. Smith, Ph.D.  
Chair

Dr. Joshua C. Watson, Ph.D.  
Committee Member

Dr. Richard Ricard, Ph.D.  
Committee Member

Dr. Jennifer Epley Sanders, Ph.D.  
Graduate Faculty Representative

August 2020

## ABSTRACT

Trauma is a widely experienced event across the nation and throughout the world. Worldwide statistics estimate 70% of adults experienced at least one traumatic event in their lifetime (Benjet et al., 2016). There are various therapeutic interventions available for trauma survivors but few measures that attempt to directly assess one's resilience to traumatic experiences. This study aims to fulfill this need. A comprehensive review of research about resilience and trauma were examined to facilitate the development of instrument items. Further, well established resilience instruments and theoretical concepts were used in item creation. These resources were used to help establish content related to the trauma resiliency construct. Trauma resiliency is described as one's ability to bounce back after traumatic experiences. In this quantitative study, four objectives facilitated the development and validation of the Brief Trauma Resiliency Scale (BTRS) including: (1) evaluating content-oriented evidence, (2) assessing the internal structure of the BTRS, (3) evaluating the relationships of the BTRS with related constructs, and (4) evaluating the internal consistency reliability of BTRS scores. A comprehensive explanation is provided about the study design and inherent limitations are acknowledged.

Keywords: trauma, resilience, trauma resiliency, mental health

## TABLE OF CONTENTS

CONTENTS	PAGE
ABSTRACT.....	v
TABLE OF CONTENTS.....	vi
LIST OF FIGURES .....	x
LIST OF TABLES .....	xi
PART I: DEVELOPMENT AND INITIAL VALIDATION OF THE BTRS .....	1
Trauma Interventions.....	3
Resilience Construct and Instruments Applied to Trauma Survivors.....	5
Statement of the Problem.....	8
Purpose of the Study .....	9
Research Questions.....	10
Study Overview .....	11
Resilience and Related Constructs.....	12
Significance of the Study.....	14
Definition of Terms.....	15
PART II: REVIEW OF THE LITERATURE .....	18
Prevalence of Mental Health Disorders .....	18
Worldwide Statistics of Mental Health Disorders and Trauma.....	19
Prevalence of Mental Health Disorders and Trauma in U.S.....	20

Texas Statistics Related to Trauma and Mental Health .....	21
Trauma Signs and Symptoms .....	22
Protective Factors of Traumatic Experiences .....	24
Trauma Indicators and Protective Factors Revealed from Survivor Stories.....	26
Resilience as a Construct .....	27
Measures of Resilience .....	29
Need for New Scale .....	31
This Study’s Conceptualization of Trauma Resiliency .....	32
Brief Trauma Resiliency Scale Theoretical Foundation.....	33
Relational-Cultural Theory .....	33
Cognitive Behavior Theory.....	35
Constructs Related to Trauma Resiliency.....	39
<b>PART III: METHODOLOGY .....</b>	<b>42</b>
Stage 1: Establishing Evidence Based on Content of the Instrument.....	43
Step 1: Create an Item Pool .....	43
Step 2: Selection of Experts.....	45
Quantitative and Qualitative Review of the Initial Item Pool.....	47
Stage 2: Establishing Evidence for Internal Structure of the BTRS .....	48
Participants.....	48
Procedure .....	50

Instruments.....	51
Data Analysis.....	55
Stage 3: Establishing Evidence Based on Relations to Other Variables .....	57
Data Analysis.....	58
Stage 4: Establishing Internal Consistency Reliability.....	58
Coefficient Alpha.....	58
Limitations.....	59
PART IV: REFERENCES.....	61
LIST OF APPENDICES.....	83
Appendix A. Information Sheet.....	84
Appendix B. Recruitment Script.....	87
Appendix C. Demographic Questionnaire.....	89
Appendix D. Brief Trauma Resiliency Scale.....	90
Appendix E. Adult Dispositional Hope Scale.....	92
Appendix F. Achievement Motivation Measure.....	93
Appendix G. Brief Resilience Scale.....	94
Appendix H. GAD-7.....	95
PART V: PROJECT REPORT .....	96
LIST OF APPENDICES.....	131
Appendix 1. Shapiro Wilk Test of Normality.....	132
Appendix 2. Skewness Statistics.....	132

Appendix 3. KMO and Bartlett’s Test.....	132
Appendix 4. Communalities of BTRS Items.....	133
Appendix 5. Scree Plot.....	134
Appendix 6. Eigenvalues.....	134
Appendix 7. BTRS Pattern Matrix.....	135
Appendix 8. BTRS and Factors Internal Consistency Reliability.....	136
Appendix 9. Bivariate Correlations.....	137
Appendix 10. Demographic Data.....	138
Figure 1. Study Overview.....	140

## LIST OF FIGURES

FIGURE	PAGE
FIGURE 1. Study Overview. ....	140

## LIST OF TABLES

TABLES	PAGE
Table 1. Shapiro Wilk Test of Normality. ....	132
Table 2. Skewness Statistics. ....	132
Table 3. KMO and Bartlett's Test. ....	132
Table 4. Communalities of BTRS Items. ....	133
Table 5. Scree Plot. ....	134
Table 6. Eigenvalues. ....	134
Table 7. BTRS Pattern Matrix. ....	135
Table 8. BTRS and Factors Internal Consistency Reliability. ....	136
Table 9. Bivariate Correlations. ....	137
Table 10. Demographic Data. ....	138

## **PART I: DEVELOPMENT AND INITIAL VALIDATION OF THE BTRS**

Internationally, mental health disorders impact individual's well-being on a social, personal, and economic level (World Health Organization, 2018). Various forms of media outlets such as ABC, CBS, FOX, newspaper outlets, and Facebook play a significant role in educating the public about mental disorders (Diefenbach, 1997; Menon et al., 2014; Nairn, 2007). The impact is substantial and the tone used to distribute information can either create stigmas or encourage others to seek help (Green et al., 2003; Lasalvia, 2013; Paykel, 1997). The World Health Organization, community mental health agencies, and managed care insurance case managers engage in advocacy and awareness efforts to proactively treat those in need of mental health services (Funk et al., 2006; Schwartz et al., 2016). Media outlets have recognized the impact of various disorders including post-traumatic stress disorder (PTSD), major depressive disorder (MDE), and anxiety-related disorders on individual's well-being. Mental health issues impact individuals on a global level and are found among all age groups. To promote well-being on an international level, it is necessary to create a culture encouraging others to seek treatment for mental health challenges. Mental health professionals can assist by actively screening for those who are at-risk of mental health concerns.

Often mental health concerns develop after an experience of trauma such as witnessing death and childhood maltreatment (Barboza, 2017; Hung, et al., 2019). Traumatic experiences are becoming more prevalent due to social media being flooded with violence and life-threatening events. With there being an inability to strictly regulate what is displayed on various forms of media and increased access to technology, more people are witnessing potentially traumatic events (Jones et al., 2016). Often media sites display gruesome videos and pictures documenting horrific events (Henderson, 2018). These incidents are being viewed on various

platforms and reach millions of people. More alarming is the fact that young adults are witnessing these acts more frequently due to their dual use of traditional media sources and social media (Jones et al., 2016). In addition to exposure through mass media, many individuals are exposed to traumatic events through eyewitness observations or first-hand experience. A systematic review by Kantor et al. (2017) identified trauma survivor barriers to treatment as concerns related to stigma, feelings of shame and rejection, scarce knowledge about treatment options, fear of social consequences, inadequate resources, financial burden, and avoidance of re-experiencing the traumatic event.

Combat veterans are a population that receives increased attention due to war efforts in Iraq and Afghanistan. It is becoming increasingly common for service members to struggle with the transition into civilian lifestyles. Just accounting for service members who deployed to Iraq or Afghanistan since 2001, there is in excess of 1.9 million troops who deployed to combat zones (Zhang, 2018). For service members from the United States, Australia, and British Columbia over 18.5% suffer from mental health issues (Balfoura et al., 2014). One of the more frequent diagnoses of veterans is combat-related PTSD which often serves as a precursor to homelessness, interpersonal conflicts, depression, anxiety, and suicide (Gerlock et al., 2014; Johnson et al., 2014). In 2008, the Veterans Health Administration system policy makers acknowledged these concerns and integrated Primary Care-Mental Health services into Veteran Affairs treatment clinics to deliver faster services and increase follow through of veterans attending scheduled appointments (Wray et al., 2012).

Although there is a strong concern for veterans, it is vital to understand trauma-related mental health issues extend beyond service members. Often because trauma-related mental health issues are discussed in relation to veterans, many civilians overlook the possibility they

may deal with similar concerns. Recently media sources have documented mass shootings in various settings such as concerts, local bars, schools, and religious settings. Many of these incidents involve large groups of people either directly experiencing, or witnessing, traumatic events. Other experiences of traumatic events include witnessing the death of loved ones, domestic violence, various forms of abuse, natural disasters, car accidents, and many more (Bender et al, 2014). These individuals are considered at-risk for trauma-related concerns and common practices need to be in place to help those who present with symptoms.

In instances where individuals do not seek treatment for traumatic experiences, many engage in maladaptive coping strategies. For example, combat veterans exposed to traumatic events often self-medicate using alcohol and illegal drugs, and display physical aggression (Gerlock et al., 2014). As for children who experience physical abuse, they are more likely to display anger and engage in risky behaviors (Springer et al., 2007). Children who experience sexual abuse are more likely to engage in substance abuse, display anger, and stay in maladaptive relationships (Pullins & Jones, 2006). The mere exposure to domestic violence showed an increased risk of both internalizing and externalizing maladaptive behaviors (Martinez-Torteya et al., 2009). Differing responses to trauma across age groups provide reason to investigate treatment response and protective factors of traumatic experiences. This data can provide insight about resilience as it relates to traumatic experiences.

### Trauma Interventions

There are several empirically validated interventions available to help trauma survivors (Campbell et al., 2016; McPherson, 2012; Nixon et al., 2012; Van Woudenberg, 2018). Nixon et al., (2012) randomly assigned children who experienced an isolated incident of trauma to either a cognitive therapy (CT) or cognitive behavior therapy (CBT) treatment group. The study assessed

PTSD symptoms at pre-treatment, post-treatment, and 6-months after completion of the intervention. Participants ranged from the ages of 7 to 17 years old (n =33). Upon completion of the study, PTSD, anxiety, and depression symptoms significantly decreased for both groups.

Cognitive Processing Therapy (CPT) with Art Therapy (AT) was another effective treatment for veterans who present with combat related PTSD (Campbell et al., 2016). Researchers assessed the effectiveness of CPT and AT by evaluating pre- and post-intervention scores on the PTSD Checklist-Military Version and Beck Depression Inventory-II. The researchers randomly grouped participants into CPT alone or CPT with art therapy groups (n=11). Both treatment groups showed improvement in PTSD and depressive symptoms. Veterans described art therapy as helpful to recall details of traumatic events and increased access to emotions.

Furthermore, Narrative Exposure Therapy (NET) demonstrated to be effective with trauma survivors. NET helps survivors' piece together memories by telling their story and processing the experience both cognitively and emotionally (McPherson, 2012). McPherson (2012) performed a systematic review of NET based therapeutic interventions targeting survivors of mass violence and torture, who experienced multiple traumas over several years. Eight studies met criterion for inclusion, which required measurement of PTSD outcomes, articles to be written in English, and publication in a peer reviewed journal since 2000. Participants included Sri Lankan children, Rwandan orphans, adult African refugees, and elderly Romanian prisoners (n = 482). NET demonstrated to be effective at decreasing PTSD severity for all target populations (McPherson, 2012).

One other successful intervention for trauma survivors was Eye Movement Desensitization and Reprocessing (EMDR) therapy. EMDR requires clients to engage in a series

of eye movements while narratively reconstructing their traumatic experience. EMDR combined with prolonged exposure, physical activity, and psychoeducation proved to be effective at reducing PTSD symptoms of Dutch adults (Van Woudenberg, 2018). Inclusion criteria required participants to be at least 18 years old and meet PTSD diagnosis criteria (n = 109). The researcher compared PTSD scores prior to treatment, nine days after treatment, and six months after treatment to assess effectiveness of EMDR. Results revealed a 2.9% dropout rate, 82.9% of participants responded to treatment, and 54.9% of participants no longer met PTSD diagnosis criteria (Van Woudenberg, 2018).

Despite numerous therapeutic interventions being available for trauma survivors, many do not seek treatment for various reasons. Kantor et al., (2017) found trauma survivors refrain from treatment due to mental health stigmas, feelings of rejection, inadequate resources, and financial barriers. Mokrue et al., (2011) discovered adults refused services due to feeling capable of managing their situation and being more concerned about others involved in the traumatic experience. Other barriers to treatment included difficulties due to geographic location and lack of insurance (Jones et al., 2018). The United States Census Bureau (2019) estimated 27.5 million people were without insurance during 2018. Some ways to address this issue is for mental health professionals to assess client's resilience and educate the public about responses to trauma.

### Resilience Construct and Instruments Applied to Trauma Survivors

The current study defines resilience as one's ability to bounce back, after a traumatic experience. However, the features and form of the resilience construct studied for decades produced various descriptions. The resilience construct evolved overtime from being conceptualized as a fixed trait to being influenced by external factors (Anthony, 1974; Garmezy et al., 1984; Werner & Smith, 1982). Resilience is more recently viewed as dimensional and ever

changing (Luthar, 2006; Rutter, 1999). Pioneers suggest resilience is important to developmental growth, responding to stress, adaptation, overcoming adversity, resistance to psychosocial risk, and recovering from trauma (Hunter, 1999; Luthar, 2006; Rutter, 1999; Smith et al., 2008; Werner, 1995).

Researchers have conceptualized and created ways to assess various types of resilience by using a number of measures. For purposes of this study, resilience measures were researched to identify those applied to trauma samples or specifically designed to measure resilience as it relates to traumatic experiences. Research using Academic Search Complete, Eric (EBSCO), and PsycINFO identified three instruments targeting resilience to traumatic experiences. The scales included: Connor-Davidson Resilience Scale (CD-RISC), Scale of Protective Factors (SPF-24), and Trauma Resilience Scale (TRS).

The Connor-Davidson Resilience Scale (CD-RISC) included 25 items, rated on a 5-point scale (0-4), and higher scores reflected higher resilience (Connor & Davidson, 2003). The scale is composed of five factors: (1) personal competence, high standards, and tenacity, (2) trust in personal instincts, tolerance of negative affect, and strengthening effects of stress, (3) acceptance of change and secure relationships, (4) control, and (5) spirituality (Connor & Davidson, 2003). CD-RISC instrument items are developed based on knowledge of the hardiness construct, protective features of psychopathology, and characteristics related to adaptive responses to stress (Kobasa, 1979; Lyons, 1991; Rutter, 1985). The preliminary study used samples from the general public, primary care outpatient, psychiatric outpatient, and subjects with generalized anxiety disorder to validate the instrument and results demonstrated good internal consistency (.85) (Campbell-Sills & Stein, 2007). Scali et al., (2012) inquired about the relationship between resilience and traumatic experiences using the CD-RISC. Researchers found breast cancer

survivors scored higher in comparison to the control group. Roy et al. (2011) found substance abusers and prisoners who attempted suicide and experienced childhood trauma scored lower for resilience as compared to those without childhood trauma. Developers of the CD-RISC instrument did not provide a unified theoretical framework to aid in the development of instrument items and conceptualization of the resilience construct. Further, the use of DSM-III-R PTSD criteria to assess lifetime trauma is another limitation due to being an outdated source.

The Scale of Protective Factors (SPF-24) is a 24-item instrument, measured on a 7-point Likert scale, developed through a series of three studies identifying protective factors that contribute to resilience (Ponce-Garcia et al., 2015). The third study aimed to identify if SPF-24 subscales could be used as a diagnostic tool to identify those who experienced violent trauma. In total, 942 participants were included across all studies. SPF-24 items reflect items of popular cognitive based resilience scales and research attesting to the importance of social-interpersonal factors (Ponce-Garcia et al., 2015). The instrument is composed of the following factors: (1) Social Support, (2) Social Skills, (3) Prioritizing and Planning Behavior, and (4) Goal Efficacy (Ponce-Garcia et al., 2015). SPF-24 demonstrated strong internal consistency reliability (.91) and the four subscales accounted for 59.05% of the total variance (Ponce-Garcia et al., 2015). Low scores on the Prioritizing and Planning Behavior subscale were found to be indicative of survivors to violent trauma. Limitations of the SPF-24 instrument are the omission of a theoretical framework to provide rationale for instrument items and the limited investigation about applicability to trauma survivors by only using a subsample with violent traumatic experiences.

The Trauma Resilience Scale (TRS) is a 48-item scale, rated on a 7-point Likert scale, which was developed over a series of two studies to assess protective factors of those who

experienced physical abuse, sexual abuse, intimate partner violence, and/or a serious threat or injury to life (Madsen & Abell, 2010). TRS categories are based on knowledge of existing literature related to protective factors of traumatic experiences (Madsen & Abell, 2010). The entire sample consisted of participants who were at least 18 years old and primarily college students (N = 577). The instrument contains the following factors: (1) Problem Solving, (2) Relationships, (3) Optimism, and (4) Spirituality. Internal consistency reliability was found to be acceptable (.93). The normed fit index (.88) and goodness of fit index (.85) fell within the acceptable threshold. Contrary, the standard error of measurement for the relationship subscale exceeded the acceptable threshold of .05, indicative of scores varying significantly from a person's true score. Further, convergent validity was less promising showing weak relationships for the problem solving, relationship, and spirituality subscales. Another limitation is the exclusion of a unified theoretical framework for the construct of interest.

Mental health professionals can help trauma survivors by being able to identify at-risk individuals and provide appropriate interventions and/or resources. Considering not all trauma survivors experience prolonged mental health concerns, it is imperative for professionals to examine resilience as it specifically relates to responding to trauma. By being able to measure trauma resiliency efficiently, professionals are better prepared to help those in need. This can be accomplished by developing a psychometrically sound instrument that measures an individual's current state of resilience to traumatic experiences.

### Statement of the Problem

Traumatic experiences occur frequently as the result of experiencing or viewing mass shootings, exposure to war conditions, domestic violence, and unexpected accidents (Bender et al., 2014). Immediately after an experience of trauma, individuals are tasked with coping and

attempting to continue living a healthy life. Although many are resilient, all are at-risk of significant life challenges. For those who are unable to cope with traumatic experiences effectively, their plight is often a downward spiral. Though numerous resources are available to assist those experiencing difficulties, they are often not utilized until situations have taken a turn for the worst.

An overview of resilience instruments applied to trauma samples revealed limitations for each instrument and detected a gap in the literature. The CD-RISC instrument used outdated DSM-III-R criteria for PTSD to assess lifetime trauma and omitted providing a unified theoretical basis (Connor & Davidson, 2003; Scali et al., 2012). SPF-24 assessed applicability to a limited sample by only including violent trauma and refrained from providing a theoretical framework for the resilience construct (Ponce-Garcia et al., 2015). The TRS measure demonstrated questionable validity evidence with weak correlations to several constructs (Madsen & Abell, 2010). There is a need for a psychometrically sound, evidence-based instrument to assess an individual's resilience, ability to bounce back, after a trauma-related experience. The current study aims to address this need.

### Purpose of the Study

The purpose of the study was to develop an instrument measuring trauma resiliency, ability to “bounce back,” after a traumatic experience. Specifically, the purpose was to develop and validate the Brief Trauma Resiliency Scale (BTRS), using a college aged sample. A scale ranging from 13 to 25 items is ideal considering shorter scales elicit higher response rates, completion rates, and retest reliability as compared to longer surveys (Kost & de Rosa, 2018; Rolstad et al., 2011). Items were created and assessed for accuracy in measuring one's current state of resilience to traumatic experiences. Development of the BTRS required (a) identifying

statistically significant protective factors of coping with trauma, (b) identifying which factors contribute most to trauma resiliency, (c) comparing the BTRS to constructs with expected relations, and (d) establish internal consistency reliability.

To further validate the BTRS, the instrument was correlated with measures of anxiety, achievement motivation, hope, spirituality, and general resilience. The BTRS measure results were expected to positively correlate with spirituality, Achievement Motivation Measure (AMM), Adult Dispositional Hope Scale (ADHS), and Brief Resilience Scale (BRS). The BTRS was expected to negatively correlate with General Anxiety Disorder-7 (GAD-7).

### Research Questions

The purpose of the study was to develop an instrument capable of assessing an individual's level of resilience, ability to "bounce back," after a traumatic experience. To create a psychometrically sound instrument, the scale under construction was developed based on pulling concepts from theoretical frameworks, supporting literature, and existing measures designed to measure resilience (Boateng et al., 2018). This was accomplished by assessing the accuracy of identifying trauma resiliency factors and using empirically validated assessment instruments for comparison purposes. The following research questions were explored:

1. What variables are representative of the trauma resiliency construct among adults?
2. What is the factor structure of the BTRS?
3. What is the internal consistency reliability of the BTRS?
4. To what degree is there a positive relationship between scores on the BTRS and other scales measuring similar constructs?

## Study Overview

The current study was intended to create and validate the Brief Trauma Resiliency Scale (BTRS) to precisely assess one's ability to bounce back after a traumatic experience. Part of the developmental process was to examine the relationship of the BTRS to other validated scales.

To develop and validate the BTRS, a targeted sample population of college students over the age of 18 were recruited. The sample was chosen because the BRS and SPF-24 resilience-based instruments were developed using college samples with each demonstrating applicability in follow-up studies to other populations and across various age groups (Cantero-García & Alonso-Tapia, 2018; Chmitorz et al., 2018; Ponce-Garcia et al., 2016; Ponce-Garcia et al., 2015; Smith et al., 2008). Participants were recruited from three universities in South Texas. Participants volunteered to take part in the study through providing informed consent via Qualtrics and no compensation was provided. Each participant completed the demographic questionnaire, Brief Trauma Resiliency Scale (BTRS), Adult Dispositional Hope Scale (ADHS), General Anxiety Disorder-7 (GAD-7), Achievement Motivation Measure (AMM), and Brief Resilience Scale (BRS). Demographic information was collected from participants to allow for a more thorough analysis. Participants were asked to provide the following information: (1) age (2) gender, (3) marital status, (4) ethnicity, (5) highest academic level of achievement, (6) degree seeking, (7) inquiry about directly experiencing or witnessing a traumatic event and (8) self-rated level of spirituality.

The current study used a four-step process to develop and validate the BTRS. Preliminary items for the BTRS scale were developed by using concepts from theoretical frameworks, referencing literature about protective features of trauma, and referencing well established resilience scales. The chosen response format for items was a five-point Likert-type scale

including the following options: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. First, content analysis was performed to evaluate instrument items as being representative of the construct under construction. A panel of experts rated the content of the instrument items and content validity ratio (CVR) scores were used to decide on items to undergo further analysis. Next, exploratory factor analysis [EFA] was used to establish evidence for the instruments internal structure. The researcher provided evidence of relation to other variables correlating the BTRS with spirituality, ADHS, AMM, GAD-7, and BRS. Finally, the instrument was assessed for internal consistency reliability. The study was designed to assess multiple sources of validity evidence allowing for accurate interpretation of the BTRS scores.

### Resilience and Related Constructs

To further establish divergent validity evidence, trauma resiliency was correlated with measures of hope, anxiety, achievement motivation, and general resilience. These constructs were specifically chosen due to previous literature identifying links between each construct and resilience. The scales of interest include the Adult Dispositional Hope Scale (ADHS), General Anxiety Disorder-7 (GAD-7), Achievement Motivation Measure (AMM), and Brief Resilience Scale (BRS).

In a study of adults, resilience and hope were found to be complementary aspects buffering against stressful life-events and psychological issues (Morote et al., 2017). This was confirmed through a study of college students who completed validated hope and resilience scales to establish convergent and incremental validity as predictors of anxiety and depression. In another study, a proposed model was suggested for parenting attachment to facilitate hope, with hope as a mediator to shield mental health issues. The findings upheld the proposed model, providing further evidence to the relationship of resilience and hope (Shorey et al., 2003).

Consentino Solano et al. (2016) set out to discover the relationship between hope and resilience in advanced cancer patients. Researchers found cancer patients who scored low in hope and resilience domains reported more depression symptoms. Findings from these studies support the expectation that scores on the BTRS and ADHS are expected to positively correlate.

Anxiety was found to be linked to resilience in various studies. Hoelterhoff and Chung (2017) studied death anxiety among participants who experienced life threatening events. Findings indicated anxiety was significantly correlated with PTSD which was buffered by one's resilience. Factors that contributed to resilience were identified as self-efficacy, religion, and existential attitude. In another study, an inverse relationship was found between resilience and anxiety among breast cancer survivors (Scali et al., 2012). That is, survivors diagnosed with an anxiety related disorder tended to score lower for resilience using the CD-RISC. Min et al. (2012) investigated the relationship of anxiety and resilience among individuals diagnosed and seeking treatment for depression. The researchers found an interaction effect for resilience and anxiety to account for treatment response. Those with high resilience and low anxiety were more responsive to treatment. Therefore, the BTRS and GAD-7 are expected to reveal a negative correlation.

The relationship of trauma resiliency and achievement motivation were assessed to provide discriminant validity. Simmen-Janevska et al. (2012) performed a meta-analysis to assess the relationship among motivational constructs and response following a traumatic experience. Researchers found post-traumatic stress symptoms to be inversely related to self-efficacy, locus of control, and self-esteem. Another study by Al-Adwan and Al- Khayat (2013) used a mixed-method design to investigate the relationship of achievement motivation and trauma using a college sample. A negative relationship was found between achievement

motivation and post-traumatic stress symptoms (Al-Adwan & Al- Khayat, 2013). Further, qualitative data showed those who reported higher PTSD symptoms to be preoccupied with their basic safety. The relationship of these constructs was assessed using the BTRS and AMM.

The relationship of resilience and trauma resiliency was assessed using the BRS and BTRS. Smith et al. (2008) developed the BRS to measure one's ability to bounce back or recover from stress. The BRS was developed and validated using a college sample which complements the targeted sample for the BTRS (Smith et al., 2008). This BRS is used in various countries and has been translated into multiple languages (Amat et al., 2014; Chmitorz et al., 2018; Consten, 2016; de Holanda Coelho et al., 2016; Rodrigues-Rey et al., 2016). The BTRS is designed to measure a dimension of resilience and is expected to positively correlate with the BRS.

#### Significance of the Study

The development and validation of the BTRS and inquiry about the relationships to spirituality, achievement motivation, hope, resilience, and anxiety can contribute to understanding of trauma resiliency. Further, examination of relationships provides valuable information to educate counselors, contribute to existing literature, and influence clinical practice.

First, development of the BTRS can help practitioners measure trauma resiliency and utilize this information to influence clinical practice. Exposure to traumatic events is an experience impacting over 70% of the worldwide population (Benjet et al., 2016). Professionals can use the BTRS as a tool to support their clinical judgment and decision-making process for therapeutic interventions designed for trauma survivors. Findings from the study may result in a better understanding of this specific component of resilience.

Second, developing BTRS items by pulling from theoretical concepts, supporting literature, and resilience scales could improve the chance of accurately assessing trauma resiliency (Boateng et al., 2018). Initial attempts to measure resilience to trauma using CD-RISC, SPF-24, and TRS either did not meet acceptable statistical thresholds, used outdated criteria for assessing trauma history, or only inquired about a subset of traumatic experiences (Madsen & Abell, 2010; Ponce-Garcia et al., 2015; Scali et al., 2012). Upon validation of the BTRS, clinicians would be better equipped to measure the state of trauma resiliency at particular points in time. Mental health professionals could use the instrument to support case conceptualization, treatment planning, and recommendation of resources.

Third, this research could help mental health professionals educate clients about how traumatic experiences influence their life through outreach efforts and within sessions. Lubin et al. (1998) found psychoeducation interventions to be effective at reducing trauma related symptoms. Mental health experts can discuss common maladaptive coping strategies, healthy coping skills, and factors attributing to trauma resiliency. This educational process could serve to normalize coping experiences and contribute to developing trauma resiliency.

Lastly, counselor educators could integrate findings into curriculum to teach counselors-in-training how to foster and conceptualize trauma resiliency. Integrating the concept of trauma resiliency into classroom settings would help counseling students prepare to work with clients who present with trauma related concerns. Education efforts could serve to advance the profession and provide understanding of best practice.

#### Definition of Terms

For this study, the following definitions would be applied:

*Achievement Motivation*

*Achievement Motivation* is defined as the affect in connection with evaluated performance in which competition with a standard of excellence was paramount (McClelland et al., 1953).

#### *Anxiety*

*Anxiety* is defined as a sense of uneasiness about an event or uncertainty about an outcome (de Ayala et al., 2005).

#### *Behavior Patterns*

*Behavior patterns* are a recurrent way of acting by an individual.

#### *Coping Skills*

*Coping skills* are one's ability to use psychological coping mechanisms to manage stress and conflict.

#### *Healthy Relationships*

*Healthy relationships* are defined as good connections with others and oneself (Kress et al., 2018)

#### *Hope*

*Hope* is defined as a motivational mental state characterized by goal-directedness and setting plans to meet goals (Snyder, 1994).

#### *Recurrent Cognitions*

*Recurrent cognitions* are defined as a persistent way of thinking about oneself, others or the world.

#### *Resilience*

*Resilience* is defined as the ability to bounce back from stress and adversity (Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008).

#### *Self-awareness*

*Self-awareness* is defined as the degree to which someone is consciously aware of their internal state and their interactions, or relationships, with others (Trapnell & Campbell, 1999).

#### *Stress*

*Stress* is defined as mental or emotional strain in response to adversity or demanding circumstances but feeling of control is maintained (Suldo et al., 2009).

#### *Social Connectedness*

#### *Trauma Resiliency*

*Trauma resiliency* refers to one's ability to bounce back, after a traumatic experience.

#### *Traumatic experience (trauma)*

*Traumatic experience (trauma)* is defined as witnessing or directly experiencing a deeply distressing or disturbing event that threatens physical, emotional, or psychological well-being (Bender et al., 2014).

## **PART II: REVIEW OF THE LITERATURE**

Scholars studied the construct of resilience and expanded the meaning of resilience over many decades (Hunter, 1999; Luthar, 2006; Rutter, 1999; Smith et al., 2008; Werner, 1995). For purposes of this study, trauma resiliency was defined as one's ability to bounce back after a traumatic experience. Researchers developed scales to measure resilience and evaluated applicability to trauma survivors with varying degrees of success (Connor & Davidson, 2003; Madsen & Abell, 2010; Ponce-Garcia et al., 2015). A common flaw was several of these scales omitted a theoretical foundation (Connor & Davidson, 2003; Ponce-Garcia et al., 2015). This review focuses on resiliency to trauma.

A review of the literature supports the need for a measure to assess one's resilience to traumatic experiences (Connor & Davidson, 2003; Madsen & Abell, 2010; National Alliance of Mental Illness, 2019; Our World in Data, 2017; Ponce-Garcia et al., 2015). Chapter two is organized into five segments: (a) prevalence of mental health issues and current statistics about trauma and diagnoses, (b) manifestations of trauma issues and protective factors, (c) measurements of resilience applied to those with traumatic experiences, (d) theoretical foundation of the Brief Trauma Resiliency Scale (BTRS), and (e) trauma resiliency and expected relations with other constructs.

### **Prevalence of Mental Health Disorders**

For years, organizations tracked the prevalence of mental health illnesses and provided contextual information to shed insight about those most affected. Worldwide statistics revealed over 970 million people experienced mental health related issues with anxiety and depression being the most common (Our World in Data, 2017). Annually, there were over 43 million U.S. citizens who experienced mental health issues and about 40% going untreated (National Alliance

of Mental Illness, 2019). These statistics are conservative considering mental health concerns are often stigmatized, trivialized, and unreported due to lack of accessibility to health care (Delva et al., 2013; Robinson et al., 2019). Further, parents who go untreated put their children at risk for developing mental health related concerns (Delva et al., 2013). This brings attention to the large impact of mental health concerns on individuals and their families.

### Worldwide Statistics of Mental Health Disorders and Trauma

Globally, in 2017, over 970 million people experienced a mental issue with anxiety (3.76%) being the most prevalent followed by depression (3.44%) (Our World in Data, 2017; Ritchie & Roser, 2020). In the same year, over 2% of the world population met diagnosis criteria for a substance abuse disorder. Our World in Data (2017) statistics revealed women were more likely to meet criteria for a mental health disorder, men were more at-risk for substance abuse, and the elderly were at higher risk for depression (Ritchie & Roser, 2020). These statistics are alarming but show different trends when comparing countries. For example, Ferrari et al. (2015) found mental health and substance related death by suicide rates to be lower for low-income countries (68%) in comparison to high-income countries (90%) (Arsenault-Lapierre et al., 2004).

Trauma statistics support the need for increased attention to assist those impacted by traumatic experiences. Benjet et al. (2016) performed a worldwide study surveying over 24 countries to investigate the prevalence of trauma. Findings revealed over 70% of participants experienced a traumatic event within their lifetime and 30.5% experienced four or more traumatic events (Benjet et al., 2016). The majority of traumatic experiences fell within the following categories: (1) witnessing death or serious injury, (2) the unexpected death of a loved one, (3) being robbed, (4) being in a life-threatening automobile accident, and (5) experiencing a life-threatening illness or injury.

Kessler et al. (2017) sought out to identify the most common traumatic experiences that led to a PTSD diagnosis by surveying 24 counties in the span of one year. Researchers found rape, sexual assault, and being stalked to be the most common experiences leading to a PTSD diagnosis (Kessler et al., 2017). The most common traumatic experience was the unexpected death of a loved one but with low PTSD risk. In the DSM-V provided by the American Psychiatric Association (2013), features of PTSD include anxiety and depression which are the most commonly endorsed mental health symptoms globally (Our World in Data, 2017).

In context, people of all age groups are impacted by mental health disorders and traumatic experiences. However, those with a history of trauma were more likely to reexperience trauma and meet diagnosis criteria for PTSD (Kessler et al., 2017). Further, those indirectly impacted by mental illness are at increased risk for developing similar issues (Delva et al., 2013).

#### Prevalence of Mental Health Disorders and Trauma in U.S.

In the United States over 43.8 million people experience mental illness per year (National Alliance of Mental Illness [NAMI], 2019). It is estimated that within 2017, 18.9% of adults experienced a mental illness and 4% lived with a serious mental illness. In context, 90% of suicides are committed by those with a mental illness (NAMI, 2019). Of individuals who experienced mental illness, only 60% received treatment (NAMI, 2019). The report by NAMI (2019) identified a substantial percentage of adults live with depression (16.9%) and/or anxiety (18.1%). Mental illness is experienced across all races: Hispanic (16.3%), White (19.3%), Black (18.6%), Asian (13.9%), and American Indian/Alaska Native (28.3%) (NAMI, 2019).

Kilpatrick et al. (2013) set out to estimate the prevalence of trauma on a national level. Researchers discovered 89.7% of adults reported experiencing a traumatic event within their lifetime. Furthermore, using criteria from the Diagnostic and Statistical Manual of Mental

Disorders, 5th Edition (DSM-5) for diagnosis of post-traumatic stress disorder (PTSD), researchers estimated the percentage of the population that met diagnosis criteria on three different time intervals. Kilpatrick et al. (2013) reported the following statistics: (1) 8.3% of the sample met criteria for PTSD within their lifetime, (2) 4.7% of the sample met criteria for PTSD within the past-12-months, and (3) 3.8% of the sample met criteria for PTSD within the last 6 months.

The statistics previously mentioned are concerning for various reasons. First, many experience trauma(s) and show symptoms but not enough to be diagnosed (Kilpatrick et al., 2013). This is troublesome because meeting diagnosis criteria should not be a prerequisite to seeking treatment. Second, the previous study by Kilpatrick et al. (2013) only focused on those who experienced trauma and met diagnosis criteria for PTSD. However, the DSM-5 identified various other trauma-related diagnoses including: (1) post-traumatic stress disorder, (2) acute stress disorder, (3) adjustment disorder, and (4) disinhibited social engagement disorder. Finally, with mental illness often stigmatized and trivialized, the accurateness of statistics is questionable and arguably underestimated (Robinson et al., 2019). The next section examines Texas statistics of mental illness and trauma to support the appropriateness of developing a trauma resiliency measure using a sample from this location.

#### Texas Statistics Related to Trauma and Mental Health

From 1989 to 2015 the Texas population grew by 63% with an estimated population of 27.4 million. In 2014, the Texas EMS Trauma & Acute Care Foundation (TETAF) reported injuries to be the leading cause of trauma for individuals under 44 years of age. In 2014, Texas amassed 3,297 trauma hospitalization injury fatalities with falls being the leading cause (37%), followed by motor vehicle traffic crashes (32%), and then firearms (15%) (TETAF,2014).

Traffic related injuries were the leading cause of traumatic brain injury (TBI) among Texans between the ages of 15-55. In Texas, there are 144,000 trauma related injuries each year, 381,000 residents who live with TBI, and at least 5,700 who are permanently disabled from TBI (TETAF, 2014). In Texas, stroke and heart attack are the leading cause of hospitalization for the elderly population (TETAF, 2014).

The U.S. Surgeon General and Texas Health and Human Services Commission (2014) estimated over 5 million adults and 1.4 million children live with a mental illness. Further, these entities estimated over 1.9 million Texans live with a serious and persistent mental illness, such as bipolar disorder or major depressive disorder. The Texas Department of State Health Services (2013) reported only 211,234 Texans received community-based mental health treatment, but over 500,000 were eligible. In perspective, the Texas Health and Human Services Commission reported 39.2% of Texans are poor and many do not have access to treatment.

### Trauma Signs and Symptoms

The current study aimed to measure one's sense of resilience to trauma at a given point in time. To provide clarity, an operational definition is provided for the term traumatic experience (trauma). For purposes of this study, traumatic experiences are defined as witnessing or directly experiencing a deeply distressing or disturbing event that threatens physical, emotional, or psychological well-being. Although the prevalence of trauma is substantial, not all who experience trauma meet criteria for a trauma-related diagnosis. Therefore, an examination of troublesome signs and symptoms are reviewed.

Bovin et al. (2014) investigated the relationship of guilt and freezing response to traumatic events as predictors of post-traumatic stress disorder (PTSD). Participants freezing response was assessed using the Traumatic Life Events Questionnaire (Kubany et al., 2000).

Researchers found participants who froze in response to a traumatic experience were more prone to feelings of guilt, and increased guilt positively correlated with PTSD symptoms. Findings suggest at-risk trauma survivors could be identified by assessing their mental state, emotional state, and thought processes.

Hung et al. (2019) investigated the trajectory of PTSD symptoms for trauma survivors who were hospitalized. Findings revealed those who experienced death or serious injury to be more prone to PTSD and often showed signs of depression. Protective factors included high social economic status and access to resources. Other indicators of recovery path were the type of trauma and the relationship to the person who directly experienced the trauma.

Another study inquired about the symptomology of witnesses to the 9/11 terrorist attacks. Investigators found 9/11 survivors commonly displayed hyperarousal, anxiousness, and emotional numbing symptoms (Adams et al., 2019). Researchers found increased life stressors, high depression symptoms, and being female to correlate with increased PTSD symptoms.

Owens (2016) surveyed undergraduate students to examine personality traits, form of attachment, and meaning making of traumatic experiences as predictors of post-traumatic symptoms (PTS). Researchers found high neuroticism, non-secure attachments, and negative meaning making were significant predictors of increased PTS severity. Findings indicated personality traits, support systems, and mental processing of events influenced recovery.

In sum, trauma response trajectories could be predicted by signs and symptoms. An examination of research findings detected personality traits, emotional state, support systems, and access to resources influenced trauma response. Therefore, an in-depth review of protective factors is needed to offer insight into one's ability to recover from trauma.

## Protective Factors of Traumatic Experiences

Nationwide and worldwide statistics indicated the vast majority of people experienced at least one traumatic event within their lifetime and most are highly resilient (Kessler et al., 2017; Kilpatrick et al., 2013; NAMI, 2019). Therefore, a review of protective factors could be useful to help other trauma survivors with less promising trajectories. This section examines the literature to detect common themes of well-adjusted trauma survivors.

Smith et al. (2017) inquired about the relationship of self-efficacy and perceived social support in relation to coping after an experience of mass violence. One year prior to the mass violence experience participants were surveyed using self-efficacy and social support measures. Researchers then surveyed the same participants six months after the traumatic experience and inquired about depression, post-trauma symptoms, social supports, and self-efficacy. Findings revealed increased social support and high self-efficacy significantly correlated with less severe distress (Smith et al., 2017). However, when social supports were less accessible, self-efficacy no longer shielded the person from post-traumatic stress or depressive signs (Smith et al., 2017). Research findings offer insight into the interconnectedness of social supports and self-efficacy as related to trauma responses.

Hassija et al. (2015) studied dysphoria symptoms of PTSD in women who experienced interpersonal trauma. Researchers found dysphoria symptoms were inversely related to social adjustment and social functioning. Other findings included a mediating effect of coping skills and emotional support for PTSD symptom severity. Results linked social connectedness, social skills, and emotional stability to increased resilience.

Another study sought to identify protective factors of mothers who experienced interpersonal trauma as an adult or child. Guyon-Harris et al. (2017) investigated the

relationship of PTSD symptoms to social connectedness. Researchers found participants with supportive family members and intimate partners showed lower PTSD symptoms (Guyon-Harris et al, 2017). Findings confirmed the importance of remaining connected to others following traumatic experiences.

Lee (2019) investigated the relationship of PTSD severity to rumination, emotion regulation, entrapment, and perceived social support among a sample of firefighters. The researcher found increased social support was related to less rumination and decreased severity of PTSD. Also, firefighters with high emotion regulation, strong support systems, and low feelings of entrapment were less susceptible to PTSD (Lee, 2019). Findings supported the protective nature of emotional stability, social supports, and cognitions.

Ginesini (2018) investigated protective factors of adult women who involuntarily migrated to another country and experienced trafficking, sexual exploitation, and torture. The researcher found resources at the individual, family, and community level helped survivors effectively cope with traumatic experiences (Ginesini, 2018). Also, connection to one's faith influenced coping skills and positive evaluation of the event. Results showed increased access to resources and spirituality were positively correlated with resilience scores and coping with trauma.

Smith-Marek et al. (2016) assessed protective factors of undergraduate students in romantic relationships who self-identified as trauma survivors. Researchers investigated the relatedness of post-traumatic stress, depression, and relationship quality to diet and exercise. Undergraduate students who maintained a healthy diet showed less post-traumatic stress symptoms, less depression symptoms, and increased relationship quality. Exercise was linked to increased post-traumatic stress and depression symptoms (Smith-Marek et al., 2016). Findings connected good nutrition to increased quality of life.

A quantitative study performed by Kaurin et al. (2018) assessed the relationship between self-compassion and depression using a sample of firefighters. Researchers found increased self-compassion was related to lower depression symptoms but less protective for those who experienced multiple traumas (Kaurin et al., 2018). Findings identified another protective feature and offer insight into the toll of multiple traumas on a person's well-being.

A thematic analysis was performed to detect protective factors of Holocaust survivors (Reches & Sondaite, 2017). The study included four female and six male participants. Researchers found social support, changes in values, circumstance, integration of experience, and self-reliance were related to coping effectiveness (Reches & Sondaite, 2017). Survivors most commonly described offered support as beneficial to positive adaptation. Others described shifts in perspective, acceptance of circumstances, and increased self-efficacy to influence positive adaptation.

#### Trauma Indicators and Protective Factors Revealed from Survivor Stories

The studies reviewed give insight into trauma survivor stories and provide indicators forecasting trauma response trajectories. This section consolidates common trauma indicators and protective factors found across studies to offer clarity toward response trajectories. These findings are later used to develop instrument items to measure trauma resiliency.

A common poor response to trauma was related to ineffective coping skills. Those with poor coping skills used illegal drugs, self-medicated, and described themselves as being emotionally numb (Adams et al., 2019; Gerlock et al., 2014). Another indicator of low resilience was the inability to process the traumatic event. Indicators of ineffective processing of events included freezing responses, difficulty engaging in meaning-making, and feelings of guilt (Bovin et al., 2014; Owens, 2016). Other signs of at-risk survivors were engagement in risky behaviors

and displays of physical aggression toward self and others (Gerlock et al., 2014; Martinez-Torteya et al., 2009; Pullins & Jones, 2006, Springer et al., 2007). Another indicator of poor outcomes was dysfunctional intimate relationships with partners and parental figures (Gerlock et al., 2014; Owens, 2016). Finally, numerous studies found emotional instability, depression, anxiousness, and neuroticism to be associated with poor adaptation (Adams et al., 2019; Hung et al., 2019; Kaurin et al., 2018; Owens, 2016; Smith-Marek et al., 2016; Smith, Felix et al., 2017).

One of the more frequent protective features found among trauma survivors was social support. That is, support from strangers, community, family members, and significant others were linked to increased ability to cope with traumatic experiences (Guyon-Harris et al., 2017; Hassija et al., 2015, Lee, 2019; Reches & Sondaite, 2017, Smith et al., 2017). Other common themes of well-adjusted trauma survivors were coping skills and self-belief. Those with strong coping skills, high emotion regulation, strong self-efficacy, self-compassion, and self-reliance were better equipped to manage long-lasting effects of traumatic experiences (Ginesini, 2018; Hassija et al., 2015; Kaurin et al., 2018; Lee, 2019; Reches & Sondaite, 2017; Smith et al., 2017). Spirituality and faith were found to be associated with increased ability to cope following a traumatic experience (Reches & Sondaite, 2017). Other protective features included history of secure attachment to parental figures and following a healthy diet (Guyon-Harris et al., 2017; Smith-Marek et al., 2016). Finally, acceptance of circumstances, reappraisal of values, and integration of experience were crucial to effective adjustment following traumatic experiences (Reches & Sondaite, 2017).

### Resilience as a Construct

The resilience construct evolved over many decades, and countless studies contributed to the conceptualization of this term. Throughout the years, scholars grappled with two main

objectives including operationally defining the construct and perception of resilience as a trait, state, or process. The evolution shifted from a simplistic view and later evolved into a complex system. This evolutionary process is discussed to offer insight into how trauma resiliency is defined in this study.

Early pioneers investigated resilience as an individual characteristic that was genetically predetermined (Anthony, 1974; Werner & Smith, 1982). Although some still view resilience in this manner, many shifted their stance and identified resilience as being influenced by external factors (Garmezy et al., 1984; Rutter 1979). Protective factors were studied on three levels: individual, family, and community. As this shift took place, resilience was studied as a state or process, rather than a trait. Further, resilience was then viewed as dimensional and constantly changing (Luthar, 2006; Rutter, 1999). In essence, resilience could increase or decrease over time, and a person could be more resilient in one domain versus another.

Werner (1995) described resilience as an evolving developmental process used for three purposes: (1) developmental growth despite high risk status, (2) maintained competence under stress, and (3) ability to recover from trauma. Hunter (1999) described resilience as a defense to adapt to situational circumstances, and it was measured on a continuum. Luthar (2006) described resilience as a two-part construct: adversity and positive adaptation. This perspective implied resilience could be inferred in the presence of each dimension. Rutter (1999) described resilience as resistance to psychosocial risk experiences. This interpretation viewed resilience as influenced by genetic and environmental factors. Smith et al. (2008) defined resilience as the ability to bounce back or recover from stress, and it is measured solely on this ability. For purposes of this study, these conflicting views shaped the way resilience is measured.

## Measures of Resilience

Three scales were reviewed that attempted to measure resilience to traumatic experiences. The scales reviewed included the Connor-Davidson Resilience Scale (CD-RISC), Scale of Protective Factors (SPF-24), and Trauma Resilience Scale (TRS). Of the three scales, only the TRS was developed to directly measure resilience to traumatic experiences, but only for those violent in nature. The CD-RISC and SPF-24 scales were initially developed for different purposes but later assessed for appropriateness of being applied to trauma samples. The CD-RISC, SPF-24, and TRS scales are discussed in detail to provide evidence for the need of a new instrument measuring trauma resiliency.

The Connor-Davidson Resilience Scale (CD-RISC) included 25 items, rated on a 5-point scale (0-4), and higher scores reflect higher resilience (Connor & Davidson, 2003). The scale is composed of five factors: (1) personal competence, high standards, and tenacity, (2) trust in personal instincts, tolerance of negative effect, and strengthening effects of stress, (3) acceptance of change and secure relationships, (4) control, and (5) spirituality (Connor & Davidson, 2003). CD-RISC items were built on various empirical findings of Kobasa, Rutter, Lyons, and Shackleton (Connor & Davidson, 2003). The instrument was developed through a series of studies using samples from the general population, primary care outpatients, psychiatric outpatients, and two clinical trials of PTSD. A later study confirmed good internal consistency (.85) of the CD-RISC instrument using an undergraduate student sample (Campbell-Sills & Stein, 2007). Another study found breast cancer survivors scored higher for resilience when compared to a general sample (Scali et al., 2012). Roy et al. (2011) found substance abusers and prisoners who attempted suicide and experienced childhood trauma scored lower for resilience as compared to those without childhood trauma. The studies of breast cancer survivors and

prisoners showed conflicting findings related to resilience and trauma. Researchers who developed this measure omitted a unified theoretical framework to articulate how resilience to trauma is developed.

Scale of Protective Factors (SPF-24) was developed to identify protective features of resilience. There are 24-items, measured on a 7-point Likert scale, and higher scores reflect higher resilience. A series of three studies were used to identify protective factors of college students (Ponce-Garcia et al., 2015). The third studies' sole intention was to identify if subscales could identify those who experienced violent trauma. The final version of SPF-24 contained the following factors: (1) Social Support, (2) Social Skills, (3) Prioritizing and Planning Behavior, and (4) Goal Efficacy (Ponce-Garcia et al., 2015). SPF-24 demonstrated strong internal consistency reliability (.91) and the four subscales accounted for 59.05% of the total variance (Ponce-Garcia et al., 2015). The Prioritizing and Planning Behavior subscale detected survivors of violent trauma. This scale was developed based on cognitive resilience scales and literature confirming the importance of social-interpersonal factors, but omitted a unified theoretical framework and only studied a subsample of trauma survivors (Ponce-Garcia et al., 2015).

The Trauma Resilience Scale (TRS) is used to measure resilience for those who experienced physical abuse, sexual abuse, intimate partner violence, and serious threat or injury to life (Madsen & Abell, 2010). There are 48-items, rated on a 7-point Likert scale, and higher scores reflect higher resilience. Madsen and Abell (2010) developed the scale over a series of two studies to identify protective factors of trauma survivors (Madsen & Abell, 2010). The scale was developed using a college sample and the final version produced the following factors: (1) Problem Solving, (2) Relationships, (3) Optimism, and (4) Spirituality. Researchers found strong internal consistency reliability (.93) with the college sample. TRS items were created by

referencing literature documenting protective features of traumatic experiences (Madsen & Abell, 2010). However, weak content validity evidence was established with problem solving, relationship, and spirituality subscales.

### Need for New Scale

Taking into account the prevalence of trauma, trauma-related concerns, and mental health diagnosis it is important to know what factors help people adapt following traumatic events (National Alliance of Mental Illness, 2019; Our World in Data, 2017). The lack of an existing psychometrically sound instrument measuring resilience to trauma inspires the purpose of this study. A review of current resilience instruments revealed flaws for each scale (Connor & Davidson, 2003; Madsen & Abell, 2010; Ponce-Garcia et al., 2015).

The CD-RISC measure was developed based on empirical findings of Kobasa, Lyons, Rutter, and Shackleton (Connor & Davidson, 2003). CD-RISC was designed to measure resilience of non-clinical and clinical samples, and could be used to reassess resilience after treatment. Shortcomings of CD-RISC are the exclusion of a unified theoretical basis and inability to identify factors directly related to trauma resiliency. Scale of Protective Factors was developed based on existing literature attesting to the importance of protective factors contributing to resilience (Ponce-Garcia et al., 2015). SPF-24 included two social-interpersonal and two cognitive-individual factors. The instrument was developed using a sample of college students who experienced violent trauma. Results revealed low scores in all domains but more pronounced within the Prioritizing and Planning Behavior subscale (Ponce-Garcia et al., 2015). Findings of the SPF-24 developmental study provided some insight about resilience to trauma, but failed to consider other forms or provide a unified theoretical framework. The Trauma

Resilience Scale was a more direct attempt to assess resilience to violent trauma. However, results revealed weak content validity for multiple subscales (Madsen & Abell, 2010).

### This Study's Conceptualization of Trauma Resiliency

Trauma resiliency was defined as one's ability to bounce back after a traumatic experience. The BTRS aimed to measure trauma resiliency as a trait, state, and process. This conceptualization was offered based on an overview of resilience literature and in consideration of the historical nature versus nurture examination.

The nature versus nurture debate was comprised of understanding human behavior as inherited or acquired. Nature described human characteristics and behavior as being inherited at birth and naturally manifesting through human development. The nurture stance argued human characteristics and behaviors are learned throughout the lifespan. There are extremes of each perspective, but with time researchers became more interested in understanding the interaction of nature and nurture. Kim-Cohen et al. (2004) investigated genetic and environment contributions to resilience of socially economically deprived monozygotic and dizygotic twins. Measures included socioeconomic deprivation, antisocial behavior, IQ, maternal worth, temperament, stimulating activities, and social support. The ACE model was used to estimate genetic and environmental influences on outcome variables. ACE model measured additive genetics (A), shared environments (B), and non-shared environmental influences plus error (E) to estimate contributions. Researchers found genetics accounted for 71% of behavioral resilience and 46% of cognitive resilience with the remainder of each accounted for by environmental influences and error.

Findings from the Kim-Cohen et al. (2004) study supported measuring trauma resiliency as a state, trait, and process. This study perceived trauma resiliency to be influenced by

experience and was described as a dimension of resilience. To reflect this approach, BTRS items were created using a combination of personal characteristics, environmental features, social connectedness, and action-oriented behaviors. This conceptualization provides a clear way to interpret what contributes to trauma resiliency.

### Brief Trauma Resiliency Scale Theoretical Foundation

For purposes of this study, resilience was measured in relation to traumatic experiences. Preliminary instrument items reflected personal characteristics, environmental features, social connectedness, and action-oriented behaviors. Items were developed by reviewing literature about protective features to trauma, pulling concepts from RCT and CBT, and referencing resilience scales. Theoretical roots of the BTRS are discussed to support the inclusion of instrument items tested.

### Relational-Cultural Theory

Relational cultural theorist identified healthy relationships as a cornerstone for well-being. Healthy relationships are defined as good connections with others and oneself (Kress et al., 2018). This perspective suggested low levels of resilience are reflected in unhealthy relationships and deteriorating well-being. Jordan (2010) described healthy relationships as growth-fostering and characterized by an experience of safety and well-being. Miller (1986) mentioned growth-fostering relationships share five key characteristics including: (1) zest, (2) wanting to establish connections, (3) self-worth, (4) original and productive capacities, and (5) clarity with oneself and others. Relationships are expected to move through connections by connecting, disconnecting, and reconnecting, but well-being declines when someone remains disconnected for long periods of time (Kress et al., 2018). This perspective suggests social connections are crucial to well-being and serve to increase resilience.

Some BTRS items are inspired by RCT and reflect self-awareness. Self-awareness is defined as one's conscious knowledge of their individuality and is critical to developing healthy relationships and social connections (Miller, 1986). Through introspection individuals recognize themselves as an individual and hold this perception in situational circumstances. High resilient individuals are expected to hold a stable self-concept reflected in positive qualities. Diehl and Hay (2010) investigated the relationship of stress on affect with resilience and self-concept as mediators. Findings showed incoherent self-concept and younger adults were more susceptible to negative affect. This was more noticeable on high stress days and when adults felt they were not in control. Researches linked stable self-concept and ability to cope when not in control to higher resilience, better emotional adjustment, and well-being. Rahat and Ilhan (2015) examined social adjustment of at-risk college students to several constructs. Researchers found relational self-construal was significantly related to personal and social adjustment. Armstrong et al. (2011) studied emotional intelligence and the relationship between psychological distress and negative life events among adults. Increased emotional self-awareness was found to mitigate the effects of psychological distress even when occurrences of negative life events increased. Together, findings showed resilience was influenced by a stabilized view of self, self-perception about emotional adjustment, understanding of self as independent from others, and confidence in ability to overcome challenges.

Another portion of BTRS items were derived from RCT and reflected social connectedness. Items of this domain were supported by numerous resilience research studies connecting social connectedness to increased resilience. Mcloughlin et al. (2018) investigated adolescent students' abilities to cope following experiences of cyberbullying. Students with increased social connectedness showed better mental health, coping abilities, and willingness to

seek help following cyberbullying. Cyberbullying could be stressful and/or traumatic for victims, therefore findings supported the link of social connectedness to increase resilience. Tras et al. (2019) investigated the relationship between college students' resilience and levels of social exclusion and forgiveness. Researchers found higher reports of social exclusion were significantly related to decreased resilience. Findings revealed increased social connectedness and communication with family, friends, and peers improved resilience. Henderson and Greene (2014) used a mixed-methods design to examine interrelatedness of resilience, social connectedness, and re-suspension rates among troubled youth. No relationships were found for re-suspension rates but data showed increased connection to peers and academic institution increased resilience. The importance of social connectedness is also supported by a study that examined the impact of parental and school support on depressive symptoms following trauma exposure (Schwerdtfeger Gallus et al., 2015). Researchers found both forms of social support to be related with reduced depressive symptoms. Parental connectedness served as a moderator and protective factor to trauma. Reflection on previous studies found resilience to be influenced by various forms of social connectedness.

### Cognitive Behavior Theory

CBT was founded on Cognitive Theory (CT) and Behavioral Theory (BT). CBT is an interconnected system linked to cognitions, emotions, and behaviors. Cognitions are fundamental and influence emotions and behaviors. To provide a comprehensive view of CBT, CT and BT influences are discussed.

Ellis, Meichenbaum, and Beck played key roles in developing and conceptualizing CT. Ellis' (1987) contribution to CT involved introducing intentionality with challenging faulty beliefs. Through this process clients challenged irrational beliefs using reason and logic. This

process encourages rational thinking, which in turn corrects emotional and behavioral problems. Meichenbaum's contribution included the concept of cognitive behavior modification. Cognitive behavior modification is a process that involves modification of self-talk to reduce stress (Thoma et al., 2015). The approach is based on the belief that self-talk is reflected in behaviors. Beck (2011) encouraged clients to challenge irrational beliefs, introduce new beliefs, and apply new rational beliefs to improve well-being.

BT contributors are Watson, Pavlov, Thorndike, and Skinner. Pavlov (1902) contributed by introducing classical conditioning, proposing learning occurred through pairing an unconditioned stimulus to a conditioned stimulus. This method of learning was demonstrated by creating an automatic response of a dog to salivate at the sound of a bell. Watson (1913) added to the concept through application to human subjects. He demonstrated learned behaviors could be acquired through experience with our environment and then transferred to other scenarios. Watson and Thorndike (1911) introduced the law of effect that showed pleasant experiences increase the chance of a behavior. Skinner (1957) then presented the idea that reinforcement and punishment influenced the frequency of behaviors.

CBT is founded on roots of CT and BT. Counselors apply CBT focus on challenging beliefs to influence behavior. CBT theorists identified negative core beliefs to be key to undesirable feelings and dysfunctional behavior. Core beliefs are composed of intermediate beliefs (e.g. rules, expectations) and automatic thoughts (e.g. behaviors, physiological responses). The interconnected system involving cognitions, emotions, and behaviors are central to interventions. CBT interventions are commonly used to treat clients who present with trauma related symptoms, such as anxiety and depression (Strunk et al., 2007; Saavedra et al., 2010).

Reflection on key concepts from CBT supported the inclusion of two groups of items for the BTRS. These items are related to recurrent cognitions and behavior patterns.

Recurrent cognitions are core to CBT and provide a way to assess resilience to trauma. The importance of cognitions was supported by a 10-week CBT intervention directed at treating PTSD symptoms of youth aged children ranging from 8 to 18 years old (Smith et al., 2007). Findings revealed 92% of participants no longer met PTSD diagnosis criteria with maladaptive cognitions serving as a mediator for treatment changes. Treatment gains sustained at 6-month follow up with marked improvements of PTSD symptoms, anxiety, depression, and overall functioning. Mak et al. (2011) researched mediating effects of positive views (self, world, future) on resilience, life satisfaction, and depression of college students. Researchers found each level of positive views were related to increased resilience, improved life satisfaction, and decreased depressive symptoms. Another study examined specific dimensions of emotional self-efficacy and interpersonal sensitivity as related to resilience of adults (Aydogdu et al., 2017). Researchers found use of emotions to influence thoughts, perception of emotions, understanding of emotions, emotion regulation, and strong self-efficacy were predictors increased resilience. Further support is provided by Brookmeyer et al. (2015) whom investigated the effect of eye witness observation of violent acts on adolescents committing violent acts. Prosocial cognitions and parental support served as a protective mechanism from committing violent acts and influenced resilience. Findings from studies provided evidence of positive perspective, understanding of emotions, increased self-efficacy, and perceived social support to contribute to increased resilience.

BTRS items reflect the CBT foundational element of behavioral patterns. Those who engage in healthy behavior practices are expected to be more resilient. Meyer and Stanick (2018) found college students who experienced trauma maladaptively coped by exercising strict control

over eating, refusing to eat, and becoming hyper focused on their body image. Findings indicated high resilient individuals hold a healthy and stable view toward their nutritional needs. Woolman et al. (2015) investigated PTSD symptom relatedness to academic stress and alcohol consumption behaviors of undergraduate students. Findings revealed trauma served to increase stress sensitivity and likelihood to cope using alcohol. Participants commonly described using alcohol as a method of avoidance. These findings were similar to another study that examined the trajectory of depressive symptoms across the lifespan from adolescents to adulthood (Barboza, 2017). Participants who endorsed experiencing childhood maltreatment were more susceptible to depressive symptoms and alcohol use. Others who experienced child maltreatment but maintained low depression symptoms engaged in less frequent alcohol consumption, abstained from risky behavior, and performed better academically. Frieze (2015) performed a literature review to document the impact of trauma on student learning and behavior. Trauma survivors were more likely to display aggressive and delinquent behavior, have more school absences, and struggled to concentrate. Many concerns were mitigated by increased support from educators and academic institutions (Duplechain et al., 2008). In consideration of the findings discussed, higher resilient individuals are expected to remain focused during adversity, engage in help seeking behaviors, utilize healthy coping strategies, maintain good nutrition, remain accountable, and stay connected to others.

RCT and CBT components were used as part of the theoretical framework to assess trauma resiliency. BTRS items reflect self-awareness, recurrent cognitions, behaviors, and social connectedness. The components in addition to protective factors were used to develop all items.

## Constructs Related to Trauma Resiliency

Convergent validity was determined by evaluating the BTRS as related to a select group of constructs. These constructs include hope, anxiety, achievement motivation, and general resilience. The scales used to assess the BTRS to the constructs of interest include the ADHS (Snyder et al., 1991), GAD-7 (Spitzer et al., 2006), BRS (Smith et al., 2008), and AMM (Smith et al., 2019). This section references literature connecting each construct to resilience and specifies expected relationships.

There is an expected positive correlation between hope and trauma resiliency. Morote et al. (2017) assessed the predictability of anxiety and depression through the use of scales measuring hope and resilience. Results demonstrated hope and resilience were complementary and served as protective mechanisms against stressful life-events and psychological issues amongst a college sample (Morote et al., 2017). The relationship of these constructs was further evaluated in a study targeting cancer patients. Researchers found resilience and hope were negatively correlated to depression (Consentino Solano, et al., 2016). Kirmani et al. (2015) investigated these constructs in relation to quality of life amongst women enrolled in college. Researchers found a strong positive correlation between resilience and hope. Further, resilience and hope were positively correlated with reported quality of life. Findings across studies support the expectation for trauma resiliency and hope to be positively correlated.

The construct anxiety is expected to reveal a negative correlation to resilience. This expectation is based on several studies identifying the relationship between these variables. Hoelterhoff and Chung (2017) carried out a mixed-method design to investigate the relationship of anxiety, resilience, and life-threatening events. The quantitative portion found a link between anxiety and PTSD symptoms. The qualitative inquiry investigated qualities that contribute to

resilience. Researchers found self-efficacy, religious coping, and existential attitude served as a buffer against mental health concerns including anxiety. Scali et al. (2012) investigated the relationship of anxiety and resilience amongst cancer survivors. Survivors who met diagnoses criteria for an anxiety related disorder scored lower for resilience as measured by the CD-RISC. Min et al. (2012) expanded upon these findings by identifying an interaction effect of anxiety and resilience in relation to treatment response. Researchers found participants who scored high in resilience and low in anxiety were more responsive to treatment. The current study assessed the relationship of these constructs using the BTRS and GAD-7.

To further establish validity evidence, the relationship among resilience and achievement motivation was assessed. There is limited research directly assessing this relationship but enough to predict a positive correlation. Simmen-Janevska et al. (2012) performed a meta-analysis to assess the relationship among motivational constructs and response following a traumatic experience. Researchers found self-efficacy, locus of control, and self-esteem were negatively correlated to post-traumatic stress symptoms. Another study assessed the relationship of achievement motivation and trauma through qualitative and quantitative inquiry among Iraqi college students. Findings supported an inverse relationship between achievement motivation and post-traumatic stress symptoms (Al-Adwan & Al- Khayat, 2013). Essentially, students with increased symptoms of PTSD showed lower levels of achievement motivation. Qualitative analysis revealed those who reported higher PTSD symptoms were preoccupied with their basic safety. The current study aims to assess the relationship between these constructs using the AMM and BTRS.

Convergent validity was further established by assessing the relationship of resilience and trauma resiliency. The BRS measured one's ability to bounce back or recover from stress (Smith

et al., 2008). This instrument was chosen due to being developed using a college sample to validate the scale (Smith et al., 2008). The BTRS is intended to measure a specific dimension of resilience and is expected to show a positive correlation to resilience as measured by the BRS.

### **PART III: METHODOLOGY**

The purpose of the study was to develop and validate the Brief Trauma Resiliency Scale (BTRS). The measure was designed to assess an individual's resilience to traumatic experiences at a given point in time. The target population consisted of college students over the age of 18. To establish content-related validity items were assessed to the degree they reflected the defined construct of trauma resiliency (Lambie et al., 2017). Factorability was used to uncover factors that explained connections among various outcomes. Internal consistency reliability was determined by assessing the interrelatedness of BTRS items (Bardhoshi & Erford, 2017). The psychometric properties of the BTRS were assessed for its relationship to the following instruments: Adult Dispositional Hope Scale (ADHS), General Anxiety Disorder-7 (GAD-7), Achievement Motivation Measure (AMM) and Brief Resilience Scale (BRS). The researcher expected trauma resiliency scores to positively correlate with hope, achievement motivation, resilience, and spirituality. On the contrary, trauma resiliency was expected to show a negative correlation with anxiety. The following research questions were explored:

1. What variables are representative of the trauma resiliency construct among adults?
2. What is the factor structure of the BTRS?
3. What is the internal consistency reliability of the BTRS?
4. To what degree is there a relationship between scores on the BTRS and other scales measuring similar constructs?

To achieve the overarching goal of the study the following stages were completed: (1) establish content-oriented evidence, (2) establish evidence based on internal structure of scale, (3) establish evidence based on relations to other variables, and (4) establish internal consistency

reliability of the instrument. By establishing multiple sources of validity evidence, instrument scores could be interpreted (Lenz & Wester, 2017).

### Stage 1: Establishing Evidence Based on Content of the Instrument

The first stage focused on establishing content validity of the BTRS. The American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME) (2014) identified content validity evidence as an essential step to developing and evaluating an assessment instrument. Content validity evidence was established through a series of three steps and included: (1) creating an item pool, (2) finding content domain experts to review and evaluate items, and (3) revising items based on quantitative and qualitative review from panel experts (Lambie et al., 2017; Lenz & Wester, 2017). This mixed-method approach helped establish credible content validity evidence for the BTRS.

#### Step 1: Create an Item Pool

The researcher followed a thorough process to ensure adequate items were developed to measure the construct of interest. The researcher created an initial draft of the instrument by operationally defining trauma resiliency, completing a literature review, creating items, and selecting the response format for items (Lambie et al., 2017).

**Operationalizing the Construct.** Scale developers recommend defining a construct based on related theories, supporting literature, and existing measures (Boateng et al., 2018). A clear and concise operational definition was provided so validity evidence of the scale could be evaluated (Wolfe & Smith, 2007). The term trauma resiliency was defined as one's ability to bounce back after a traumatic experience.

**Literature review.** Boateng et al. (2018) recommend reviewing existing literature to see how other researchers approached the construct of interest. Therefore, the next step was to research protective features of trauma and related theories to create items for the BTRS. Databases searched included Academic Search Complete, Eric (EBSCO), and PsycINFO. The review inquired about topics related to trauma, resilience, and instrument development. The literature related to resilience and trauma is thoroughly discussed in Chapter 2. The researcher found one publication designed to measure resilience to traumatic experiences. However, Madsen and Abell (2010) provided a limited definition by only inquiring about traumatic experiences that were violent in nature. The scales reviewed included the Connor-Davidson Resilience Scale (CD-RISC), Scale of Protective Factors (SPF-24), and Trauma Resilience Scale (TRS). Each scale was selected based on existing literature where scales were applied to trauma samples. Items in CD-RISC, SPF-24, and TRS were reviewed to assist the researcher in the literature review process. Key concepts and words were noted and searched using databases previously mentioned.

**Item Generation.** The initial item pool was generated based on review of resilience and trauma related literature, existing scales measuring the resilience construct, and pulling from concepts of CBT and RCT (Miller, 1986; Strunk et al., 2007). The researcher referenced the Brief Resilience Scale to aid in item development by wording items that inquire about how one responds during adversity. For example, items were worded to inquire about how one responds when “stressed”, in response to “traumatic experiences”, and during “setbacks.” Other resilience measures were referenced to identify key words facilitating the literature review process. The literature review found resilient people shared common protective factors related to social connectedness, positive personal characteristics, cognitions, and behavior patterns. These

common themes were used in the development of instrument items. Items within the social connectedness category included “I trust those closest to me during hard times” and “During tough times, I know who to reach out to for support.” The self-awareness category included items such as, “I am able to identify emotions following an emotional experience” and “I remain hopeful following a traumatic experience.” Examples of items within the recurrent cognition category are “I believe I am worthy despite experiencing setbacks” and “Even in the toughest of situations, I am able to see some good.” Other items inquiring about behavior patterns included “I use alcohol or drugs to manage stress” and “Despite setbacks, I try my hardest to bounce back.”

**Response Format.** The instrument used a 5-point Likert-type response format to improve interscorer reliability (Bardhoshi & Erford, 2017). Weems and Onwuegbuzie (2001) found Likert-type scales allowed for variations of agreement while still capturing concrete responses. This provided valuable data points in comparison to a two-point response format, such as “yes” or “no.” BTRS response options were (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. In this system, higher scores represented higher level of trauma resiliency.

## Step 2: Selection of Experts

Professional standards vital to scale development required using panel experts (PE) with related experience to perform a content analysis and rating of item appropriateness (AERA, APA, & NCME, 2014). Haynes et al. (1995) recommended using field experts to increase the chance that items were representative of the targeted construct. Feedback from experts was obtained through open-ended questions and rating of items. Panel Experts (PE) were composed of practitioners with clinical experience in working with trauma survivors.

Five professionals from counseling or related fields were recruited as experts to review, provide feedback, and rate items of the initial item pool. Delgado-Rico et al. (2012) recommended for at least three panel experts to rate each item. Therefore, the use of five PE's was sufficient to assess the initial item pool. All PE's had a minimum of three years of clinical experience working with trauma survivors. PE's were recruited via email requesting their assistance as a PE and information was provided about qualifications.

PE 1 was a Licensed Mental Health Counselor with five years' experience in working with families, adults, and children who experienced trauma. Experience with trauma related populations included war veterans, domestic violence, child abuse, and car accident survivors. PE 2 was a Licensed Professional Counselor with seven years' experience working with individuals, families, couples, and groups. The expert worked with military veterans, sexual assault victims, individuals experiencing crisis, and traumatic brain injury survivors. PE 3 was a Licensed Professional Counselor-Intern who worked with individuals and families. This expert's experience included eight years' experience working with refugees to address trauma, grief, and anxiety and two years' experience working with military families and trauma. The expert used trauma scales to assess treatment response and was experienced in scale development. PE 4 was a Licensed Professional Counselor and certified through the National Association for the Dually Diagnosed. The expert was employed as a Behavioral Health Specialist with three years' experience working within a trauma-informed system for adults and children. PE 4 had research experience investigating the impact of trauma on relationships. PE 5 was a Certified School Counselor and certified in School Safety and Crisis with four years' experience working with individuals and families. The expert worked with victims of domestic violence, child abuse, neglect, sexual assault, and other family related trauma.

## Quantitative and Qualitative Review of the Initial Item Pool

After experts were selected a qualitative and quantitative review process of the item pool was initiated. PE's received a packet with the following material: (a) an overview of the study and explanation of their tasks, (b) initial draft of the BTRS, (c) instructions about response format for each item, and (d) operational definition for the construct. After PE's provided qualitative and quantitative feedback the researcher analyzed each item of the instrument and recommendations were taken into consideration (Delgado-Rico et al., 2012). Consensus among experts was considered to increase the chance of items reflecting the targeted construct (Lenz & Wester, 2017).

Quantitative analysis of item ratings was conducted using the content validity ratio (CVR). PE's rated the relevance of each item on a three-point scale. Experts were provided the following options: (1) essential, (2) useful but not essential, or (3) not necessary. Lawshe (1975) provided a formula to calculate agreement among experts and cutoff scores were referenced using a table to decide on retaining or deleting items. The formula for computation is  $CVR = (N_e - N/2) / (N/2)$ .  $N_e$  represents the number of panelist rating items as "essential" and  $N$  indicates the total number of panelists. Score computations produced score values ranging from -1 to 1, with scores close to positive 1 indicating high scores. In this study all five PE's needed to unanimously agree that an item is essential for inclusion. PE's rated 56 items and 28 items received unanimous agreement of being "essential."

Qualitative feedback was elicited from PE's by offering experts an opportunity to comment on items. Of the 56 items rated by experts, 28 items received 100% consensus among experts and 3 items received 80% consensus. In consideration of including the three items with 80% consensus, comments were reviewed. The first item inquired about others offering help in

time of crisis. The expert who rated the item as “useful but not essential” described this item as being less indicative of resilience as compared to others who have access to support or actively seek help. Another item inquired about was being confident in decision making during challenges. The expert who rated the item as “useful but not essential” mentioned hope was more important than confidence when assessing resilience. The third item inquired about was maintaining good nutrition while stressed. One expert rated the item as “not necessary” but did not provide comments. After reviewing expert feedback only 28 items were retained for further testing.

## Stage 2: Establishing Evidence for Internal Structure of the BTRS

An exploratory factor analysis (EFA) was performed to explore the factorial structure of the BTRS. According to Watson (2017), EFA is a technique used to analyze data into underlying factors that in theory account for patterns of collinearity among variables. EFA is recommended to uncover latent constructs (Field, 2013). To establish evidence for the internal structure of the BTRS, this section covers the following mechanisms: (1) Participants, (2) Procedure, (3) Instruments, and (4) Methods of Statistical Data Analysis.

### Participants

Participants were recruited from TAMUCC, TAMUK and Del Mar college campuses. This population was chosen due to the BRS and SPF-24 resilience-based instruments, which were developed using a college sample and demonstrate applicability to various populations and amongst various age groups (Cantero-García & Alonso-Tapia, 2018; Chmitorz et al., 2018; Ponce-Garcia et al., 2016; Ponce-Garcia et al., 2015; Smith et al., 2008). This provided credibility for developing the BTRS using a college sample. Participants were college students, 18 years or older, capable of providing consent, and fluent in English. During data collection the

COVID-19 pandemic was ongoing and participants were at increased risk for experiencing trauma.

A contextual description of Corpus Christi was provided by the U.S. Census Bureau (2018) with an estimated population of 326,000. According to this report, the breakdown for each race were as follows: 62.4% (Hispanic), 30.3% (White), 4.1% (African American), 2.1% (Asian), and 1.1% (Other). Participants were recruited from Texas A&M University-Corpus Christi (TAMUCC), Texas A&M University-Kingsville (TAMUK), and Del Mar College. TAMUCC (2018) demographic data was composed of 12,000 current students with the majority being Hispanic (48.25%), followed by Caucasian (37.02%), African American (5.37%), and Asian (3%). TAMUK (2020) demographic data described the student body as primarily consisting of Hispanic (62%) and White (27%) students. Del Mar College (2018) student body was primarily composed of Hispanics (66.9%), followed by White (24.7%), and African American (2.8%).

The sample population was chosen due to other well-validated resilience instruments developed using college samples (Ponce-Garcia et al., 2015; Smith et al., 2008). Researchers later applied each scale to other populations and across various age groups with promising results (Cantero-García & Alonso-Tapia, 2018; Chmitorz et al., 2018; Ponce-Garcia et al., 2016). Findings indicated resilience is related to personal characteristics rather than age.

To determine the sample size needed for the current study, various guidelines were explored and considered. Gorsuch (1983) argued for a minimum of 5 observations per variable. Everitt (1975) recommended a ratio of 10 observations per variable. A large survey evaluating observation to item ratio of 1076 peer reviewed journal articles found 40.5% used a 5:1 ratio or

less and 63.2% used a 10:1 ratio or less (Costello & Osborne, 2005). Based on estimates, the minimum sample size needed was 280 participants to perform EFA.

## Procedure

A convenience sampling method was used to recruit participants from TAMUCC, TAMUK, and Del Mar College. The sampling method was chosen due to other reliable and statistically supported resilience measures developed using college samples (Ponce-Garcia et al., 2015; Smith et al., 2008). Inherent boundaries of convenience sampling are limitations related to generalizability, confines associated with inductive reasoning, and increased risk for sampling error due to outliers (Etikan et al., 2016). To provide transparency, demographic data was collected to allow readers to form their own judgment about the current study (Balkin & Kleist, 2017). Participation in the study was voluntary and all subjects were able to withdraw from inclusion in the study.

Professors from TAMUCC, TAMUK, and Del Mar College campuses were contacted via email to obtain permission to recruit participants. The investigator introduced himself, provided contact information, explained the purpose of the study, and described the components of the survey packet. When permission was granted instructors were provided the Qualtrics link to distribute to students.

All prospective participants were provided a Qualtrics link to complete the survey. Before students began the survey an information sheet was presented to explain the following: (1) confidentiality of participation, (2) purpose of the study, (3) estimated time to complete the survey packet, (4) procedures for participation in study, (5) risks and benefits, (6) consent to participate, and (7) researcher contact information. To ensure confidentiality, no names or

personally identifying information was collected. The information sheet informed participants they could withdraw or choose not to partake in the study. Students who chose to participate in the study electronically provided consent, completed the demographic questionnaire, and answered items to previously identified measures.

## Instruments

Participants completed the demographic questionnaire, and an initial item pool of the BTRS, ADHS (Snyder et al., 1991), GAD-7 (Spitzer et al., 2006), BRS (Smith et al., 2008), and AMM (Smith et al., 2019). This data was collected to perform exploratory factor analysis and bivariate correlations.

**Brief Trauma Resiliency Scale.** The BTRS initial item pool was under investigation to assess the level of resilience to traumatic experiences. The instrument was developed based on the underlying concepts of RCT and CBT, supporting literature about resilience to trauma, and by referencing resilience scales. The scale included items reflective of social connectedness, self-awareness, recurrent cognitions, and behaviors patterns (Miller, 1986; Strunk et al., 2007). Instrument items were preliminary and once factor extraction was complete, factors were named, grounded upon what the collective group of variables assessed. The initial draft of the BTRS consisted of 56 items and was reduced to 28 items after expert review. Items were rated on a 5-point Likert-type scale and included: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree. In this system, instrument scores ranged from 28 to 140, with higher scores representing higher level of resilience to traumatic experiences.

**Adult Dispositional Hope Scale.** The Adult Dispositional Hope Scale (ADHS; Snyder et al., 1991) was developed to assess one's sense of hope which is derived from goal-directed

energy (agency) and pathways to meet goals. Originally developed to work with adults, ADHS demonstrated to be reliable and valid for individuals over 15 years of age (Snyder et al., 1991). The ADHS is a self-report questionnaire that estimates an individual's overall sense of hope. Two subscales are included to directly measure agency and pathways. The ADHS's 12-items assess hope using an 8-point Likert type response format with values ranging from 1 (definitely false) to 8 (definitely true). Higher scores on the ADHS represent higher level of hope. The 12-item ADHS scale included items such as, "I feel tired most of the time" and "I am easily downed in an argument." The agency subscale was evaluated using four-items that included items such as, "I energetically pursue my goals" and "My past experiences have prepared me well for my future." The pathway subscale was evaluated using four-items that included items such as, "I can think of many ways to get out of a jam" and "There are lots of ways around any problem." Snyder et al. (1991) reported high Cronbach's alpha coefficients for overall hope on the ADHS scale ranging from .74 to .84 when used with college psychology students and adults receiving psychological treatment. Cronbach's alpha coefficients were also high for subscales ranging from .71 to .76 for agency and .63 to .80 for pathways. Robust internal consistency among scores was found through a confirmatory study using a sample of adults from ages 18 to 65, with observed alpha coefficients on the agency subscale ( $\alpha = .84$ ), pathway subscale ( $\alpha = .79$ ), and total hope ( $\alpha = .87$ ) (Gomez et al., 2015).

**Generalized Anxiety Disorder (GAD-7).** The Generalized Anxiety Disorder (GAD-7; Spitzer et al., 2006) was developed to assess the presence and severity of anxiety. Originally developed to evaluate anxiety amongst adults over 18, GAD-7 has since demonstrated to be reliable and valid for illustrating the experience in various countries and translated into various languages (Belk et al., 2016; Munoz-Navvaro et al., 2017; Sousa et al., 2015). The GAD-7 is a

brief self-report questionnaire that estimates the likelihood of anxiety related disorders being present. The GAD-7 seven items assess anxiety using a 4-point Likert-type response format with values ranging from 0 (Not at all) to 3 (Nearly every day). Higher scores indicate more severe anxiety. The 7-item scale included items such as, “Not being able to stop or control worrying” and “Trouble relaxing.” Mills et al. (2014) assessed the psychometric properties of GAD-7 when applied to Hispanic Americans who spoke English or Spanish. Researchers found high Cronbach’s alpha coefficients for overall anxiety on the GAD-7 scale ranging from .94 to .95. Internal consistency reliability was strong for the English sample ( $\alpha = 0.91$ ), Spanish sample ( $\alpha = 0.94$ ), and total sample ( $\alpha = 0.93$ ). Within the same study, strong convergent validity was found using stress, depression, and physical health measures.

**Achievement Motivation Measure.** The Achievement Motivation Measure (AMM; Smith et al., 2019) was developed to measure achievement motivation by assessing thoughts and behaviors. The AMM was based on the intrinsic needs theory of achievement motivation and developed using college students (Smith et al., 2019). The AMM is a self-report questionnaire that estimates achievement motivation through two factors including Achievement Thoughts and Achievement Behaviors. The AMM’s 13 items assess achievement motivation characteristics using a 5-point Likert-type response format with values ranging from 1 (never) to 5 (always). Higher scores on the AMM represent higher levels of achievement motivation. The eight item Achievement Thoughts subscale included items such as, “While working on a task, I think of how it will feel when the task is successfully completed” and “I prefer to know how I am progressing by obtaining concrete feedback when working at a task.” Achievement Behavior is evaluated using five items that included items such as, “In most projects I would rather take personal responsibility for completion than be only a contributor” and “I like to undertake

projects that involve some risk.” Smith et al. (2019) reported high Cronbach’s alpha coefficients, which were good for overall achievement motivation on the AMM scale ranging from .82 to .84 when used with U.S. and International college students. Reliability estimates were interpreted using Cronbach’s alpha coefficients, which were good for the Achievement Thoughts subscale with scores ranging from .77 to .80 and acceptable for the Achievement Behavior subscale (.60).

**Brief Resilience Scale.** The Brief Resilience Scale (BRS; Smith et al., 2008) was developed to assess the ability to bounce back from stress and adversity. Originally developed using two undergraduate samples, one sample of cardiac rehabilitation patients, and another with chronic pain. The BRS has since demonstrated to be reliable and valid across various countries and translated into various languages (Amat, et al., 2014; Chmitorz et al., 2018; Consten, 2016; de Holanda Coelho et al., 2016; Rodrigues-Rey et al., 2016). The BRS is a self-report measure with 3 positively worded items and 3 negatively worded items. Each item is rated on a 5-point Likert-type response format with values ranging from strongly disagree to strongly agree. Response scores are averaged with higher scores reflecting higher resilience. The positively worded items included items such as, “I tend to bounce back quickly after hard times” and “It does not take me long to recover from a stressful event.” Negatively word items included items such as, “I have a hard time making it through stressful events” and “It is hard for me to snap back when something bad happens.” Smith et al. (2008) reported Cronbach’s alpha coefficients for scores on the BRS ranging from .80 - .91, indicating satisfactory reliability of the items and strong convergent validity with related measures of resilience.

**Demographic Questionnaire.** The demographic questionnaire was designed to collect data from participants. Demographic information collected included: (1) age (2) gender, (3) marital status, (4) ethnicity, (5) highest academic level of achievement, and (6) degree currently

being sought. Participants answered “yes” or “no” to two questions including “Have you directly experienced a traumatic event?” and “Have you witnessed a traumatic event?”. Also, participants answered one item by rating their level of spirituality as it pertains to coping with life events.

## Data Analysis

**Preliminary Analysis.** Prior to performing EFA, EFA assumptions and raw data were analyzed to determine if data is interpretable. Raw data was assessed for normality, outliers, Kaiser-Meyer-Olkin (KMO) test, Bartlett’s Test of Sphericity, and the intercorrelation matrix.

First, the researcher examined data to determine if EFA assumptions were met. The researcher obtained over 280 usable surveys to ensure the minimum sample size was met. To assess for normality, skewness and Shapiro Wilk tests were performed and evaluated. Skewness was deemed within normal limits for values within the absolute value of 1 (Field, 2013). The normality assumption was met for the Shapiro Wilk’s test when the  $p$  value was above .05 (Field, 2013). Box plots and stem-and-leaf plots were used to identify outliers, which were excluded from data analysis to increase the accuracy of results (Field, 2013). Univariate descriptive statistics were used to identify missing data and were filled using the SPSS series means technique. SPSS series means replaces missing values by using the mean score for a data set (Jakobsen et al., 2017). Homogeneity of variance was assessed using the Levene’s test and the model assumption was met when the resulting significance value was above .05 (Field, 2013).

The intercorrelation matrix was then created to examine inner-item correlations. The intercorrelation was considered factorable when values were between .20 and .80 (Field, 2013). Next, a KMO test was used to determine sampling adequacy for each variable and overall model. Kaiser (1974) provided the following guidelines to interpret KMO values: .90 - 1.0 (marvelous),

.80 - .89 (meritorious), .70 - .79 (middling), .60 - .69 (mediocre), .50 - .59 (miserable), and below .50 (unacceptable). In sum, KMO tells the researcher about the strength of the relationship among items. Finally, Bartlett's Test of Sphericity was used to evaluate if the intercorrelation matrix is an identity matrix. This method identifies if relationships between variables exist which are essential for factor analysis (Watson, 2017). Data is considered appropriate for further analysis if the  $p$  value is below .05. All assumptions were met and data was deemed appropriate for EFA.

**Factorial Analysis.** Once assumptions were met, EFA was performed to extract factors representative of the latent construct. Factor extractions worked by isolating the shared variance from the unique variance of each variable (Watson, 2017). Analysis is complete once the intercorrelation matrix is maximized with the least number of factors (Mvududu & Sink, 2013).

Following factor extraction, the researcher was responsible for choosing the appropriate extraction method. The chosen extraction method for the current design was principal axis factoring (PAF). This extraction method was most appropriate because it identified latent factors underlying variables even when communalities were high or low (Kahn, 2006).

Once factors are extracted, the researcher must determine how many factors to retain. Watson (2017) suggested using the following strategies to aid in the decision-making process: (1) Kaiser Greater-Than-One Rule Criterion (KGTOR), (2) Scree Test, (3) Variance Extracted, and (4) Parallel Analysis. The KGTOR recommend retaining factors with eigenvalues greater than one because this accounts for as much variance as any other variable (Kaiser, 1960). The scree test is used to assess factors to eigenvalues. Factors are retained up until the point of where the larger eigenvalues taper off, this is also described as retaining factors to the left of the elbow (Cattell & Jaspars, 1967). Parallel analysis required the researcher to compare eigenvalues from

their dataset to eigenvalues from a random data set. If a factors' eigenvalue was larger than the random data set eigenvalue then the factor was retained (Dimitrov, 2012).

Once factors were extracted, researchers used a rotation method to aid in the interpretation process. A Promax rotation method was used because dimensions of the BTRS are expected to correlate (Watson, 2017). The produced factor pattern matrix was assessed for the extent to which a simple structure was attained.

Finally, the researcher analyzed data to choose items representative of each factor. The following criteria were used to retain or remove items: (a) communality values between .40 and 1.0 were retained (Pett et al., 2003), (b) variables with loadings less than .32 were deleted (Maskey et al., 2018), and (c) only factors loading three or more variables were retained (Pett et al., 2003). For criteria b, if variables load on two or more factors, the variable was retained on the highest loading if there was at least a .10 difference from the next highest loading (Tabachnick & Fidell, 2013). If the minimum difference was not met, the item was deleted. This decision-making process reveals the internal structure of the BTRS and factors were named based on what items assessed.

### Stage 3: Establishing Evidence Based on Relations to Other Variables

This stage is designed to establish construct validity of the instrument. Construct validity identifies how well items are reflective of a content domain (DeVellis, 2012). For the current study, convergent validity was assessed between the BTRS and measures similar to the construct of interest. The researcher examined the relationship of the BTRS to spirituality, hope, anxiety, achievement motivation, and resilience, as measured by the ADHS (Snyder et al., 1991), GAD-7 (Spitzer et al., 2006), BRS (Smith et al., 2008), and AMM (Smith et al., 2019). The BTRS was

expected to positively correlate with spirituality, ADHS, BRS, and AMM. Contrarily, the BTRS was expected to negatively correlate with the GAD-7.

## Data Analysis

**Pearson Product Moment Correlation.** The Pearson's product moment correlation (PPMC) was used to assess the relationship between constructs measured using interval/ratio variables (Watson, 2017). This method allows for linear relationships to be identified between variables (Mukaka, 2012). Bivariate correlations were interpreted by evaluating statistical significance, direction of the relationship, and strength of the relationship (Watson, 2017). Statistical significance was confirmed when  $p$  values were below .05. Next, direction and strength of relationships were interpreted. Sink and Stroh (2006) provided the following guidelines for interpreting effect size: .1 (small), .3 (medium), and .5 (large).

### Stage 4: Establishing Internal Consistency Reliability

The last stage focused on establishing internal consistency reliability of the BTRS. Essentially, the researcher statistically analyzed the interrelatedness of items for the BTRS scale (Watson, 2017). The researcher used coefficient alpha to assess the internal consistency reliability of the BTRS.

### Coefficient Alpha

Cronbach (1951) designed this technique to compute the theoretical average for all potential split-half reliability estimates among a set of item scores. Coefficient alpha is recommended when item responses are multi-scored (Bardhoshi & Erford, 2017). Considering the BTRS was measured in this format, this reliability measure was suitable. Erford (2013)

identified reliability coefficients above .80 as acceptable for screening instruments. Therefore, this standard was used to interpret the coefficient alpha computed for the BTRS and all factors.

### Limitations

The current study was designed to contribute to empirical research about trauma resiliency through the development of an instrument that allows for an investigation of the relationship with related constructs. Yet, the study design inherently encompassed limitations related to sampling procedure, generalizability, and the collection of data during a pandemic. This section documents limitations of the study.

First, the use of a convenience sample was a limitation. This sample selection method limits the generalizability of findings, reduces the ability to engage in inductive reasoning, and increases the chance for error due to outliers (Etikan et al., 2016). Although transparency was provided to allow readers to form their own opinion, limitations still persist (Balkin & Kleist, 2017).

Next, the geographical location and sample of college students' further limits generalizability (Balkin & Kleist, 2017). College students were recruited from two universities and one community college where student bodies are predominantly Hispanic and Caucasian. Hispanics are an understudied population and results could provide useful information about their response to trauma and insight about coping during a pandemic. This data could be useful for counselors, counselor educators, and counselors-in-training who work with this population. However, since the sample is not reflective of the national population, applicability to other populations should be made with caution. Future studies could direct efforts to determining applicability of the BTRS to a more representative sample.

Another limitation of the study pertains to using a self-reported questionnaire. There may be characteristic differences between those who are willing to participate and those who decide otherwise. Also, using a self-report instrument opened the possibility of social desirability and response biases (Furnham, 1986; Morgado et al., 2017). The researcher was left to assume that individuals responded to instrument items honestly. Replication of the study is encouraged to confirm findings.

Another limitation was the inclusion of only college students, likely reflecting a homogeneous sample. Hanel and Vione (2016) found inconsistent generalizability of study findings from student populations to the general public when assessing within and across various countries. Therefore, future research should aim to assess the applicability of the BTRS to other populations and to the general public.

Lastly, the COVID-19 pandemic offers another obstacle due to the potential for elevated scores on instruments being used to measure hope, anxiety, achievement motivation. Participants who are significantly impacted by the crisis might respond differently from normal circumstances. Follow up studies are encouraged to replicate the study, confirm findings, and advance the applicability of the current scale to other populations.

#### PART IV: REFERENCES

- Adams, S. W., Allwood, M. A., & Bowler, R. M. (2019). Posttraumatic stress trajectories in world trade center tower survivors: Hyperarousal and emotional numbing predict symptom change. *Journal of Traumatic Stress, 32*(1), 67–77.  
<https://doi.org/10.1002/jts.22357>
- Al-Adwan, F., & Al- Khayat, M. (2013). The relationship between post-traumatic stress disorder and achievement motivation in a sample of Iraqi students living in Jordan. *European Journal of Social Sciences, 38*(1), 25–34.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Anthony, E. J., & Koupernik, C. (1974). *The child in his family: Children at psychiatric risk*. John Wiley & Sons.
- Armstrong, A. R., Galligan, R. F., & Critchley, C. R. (2011). Emotional intelligence and psychological resilience to negative life events. *Personality & Individual Differences, 51*(3), 331–336. <https://doi.org/10.1016/j.paid.2011.03.025>
- Arsenault-Lapierre, G., Kim, C., & Turecki, G. (2004). Psychiatric diagnoses in 3275 suicides: A meta-analysis. *BMC Psychiatry, 4*(1), 37. <https://doi.org/10.1186/1471-244X-4-37>
- Aydogdu, B. N., Celik, H., & Eksi, H. (2017). The predictive role of interpersonal sensitivity and emotional self-efficacy on psychological resilience among young adults. *Eurasian Journal of Educational Research, 69*, 37–54. <https://doi.org/10.14689/ejer.2017.69.3>
- Balfoura, M., Westwood, M., & Buchanan, M. J. (2014). Protecting into emotion: Therapeutic enactments with military veterans transitioning back into civilian life. *Research in drama*

- education. *The Journal of Applied Theatre and Performance*, 19(2), 165–181.  
<https://doi.org/10.1080/13569783.2014.911806>
- Balkin, R. S., & Kleist, D. M. (2017). *Counseling research: A practitioner-scholar approach*. American Counseling Association.
- Barboza, G. E. (2017). Child maltreatment, delinquent behavior, and school factors as predictors of depressive symptoms from adolescence to adulthood: A growth mixture model. *Youth & Society*, 52(1), 27–54. <https://doi.org/10.1177/0044118x17721803>
- Bardhoshi, G., & Erford, B. T. (2017). Processes and procedures for estimating score reliability and precision. *Measurement and Evaluation in Counseling and Development*, 50(4), 256–263. <https://doi.org/10.1177/0044118x17721803>
- Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond* (2nd ed.). Guilford Press.
- Bender, K. A., Thompson, S. J., Ferguson, K. M., Yoder, J. R., & Kern, L. (2014). Trauma among street-involved youth. *Journal of Emotional Behavioral Disorders*, 22, 53–64.  
<https://doi.org/10.1177/1063426613476093>
- Benjet, C., Bromet, E., Karam, E. G., Kessler, R. C., McLaughlin, K. A., Ruscio, A. M. & Lepine, J. P. (2016). The epidemiology of traumatic event exposure worldwide: Results from the World Mental Health survey consortium. *Psychological Medicine*, 46(2), 327–343. <https://doi.org/10.1017/S0033291715001981>
- Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quíñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, 6, 149.  
<https://doi.org/10.3389/fpubh.2018.00149>

- Brookmeyer, K. A., Henrich, C. C., & Schwab-Stone, M. (2005). Adolescents who witness community violence: Can parent support and prosocial cognitions protect them from committing violence? *Child Development, 76*(4), 917–929.  
<https://doi.org/10.1111/j.1467-8624.2005.00886.x>
- Campbell, M., Decker, K. P., Kruk, K., & Deaver, S. P. (2016). Art therapy and cognitive processing therapy for combat-related PTSD: A randomized controlled trial. *Journal of the American Art Therapy Association, 33*, 169–177.  
<https://doi.org/10.1080/07421656.2016.122664>
- Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor–Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress, 20*(6), 1019–1028. <https://doi.org/10.1002/jts.20271>
- Cantero-García, M., & Alonso-Tapia, J. (2018). Brief Resilience Scale in front children’s Behavior Problems (BRS-BP). *Anales De Psicología, 34*(3), 531–535.  
<https://doi.org/10.6018/analesps.34.3.31260>
- Cattell, R. B., & Jaspars, J. (1967). A general plasmode (No. 30-10-5-2) for factor analytic exercises and research. *Multivariate Behavioral Research Monographs, 67*(3), 211.
- Chmitorz, A., Wenzel, M., Stieglitz, R., Kunzler, A., Bagusat, C., Helmreich, I., . . . Tüscher, O. (2018). Population-based validation of a German version of the Brief Resilience Scale. *PloS One, 13*(2), e0192761. <https://doi.org/10.1371/journal.pone.0192761>
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159.  
<https://doi.org/10.1037//0033-2909.112.1.155>

- Connor K. M., & Davidson R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression & Anxiety, 18*(2), 76–82.  
<https://doi.org/10.1002/da.10113>
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*(7), 1–9. <https://doi.org/10.7275/jyj1-4868>
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297–334. <https://doi.org/10.1007/BF02310555>
- de Ayala, R. J. (2009). *The theory and practice of item response theory*. Guilford.
- de Ayala, R. J., Vonderharr-Carlson, D. J., & Kim, D. (2005). Assessing the reliability of the Beck Anxiety Inventory scores. *Educational and Psychological Measurement, 65*(5), 742–756. <https://doi.org/10.1177/0013164405278557>
- Delgado-Rico, E., Carretero-Dios, H., & Ruch W. (2012). Content validity evidences in test development: An applied perspective. *International Journal of Clinical and Health Psychology, 12*(3), 449–460. <https://doi.org/10.5167/uzh-64551>
- Delva, J., Horner, P., Martinez, R., Sanders, L., Lopez W., & Doering-White, J. (2013). Mental health problems of children of undocumented parents in the United States: A hidden crisis. *Journal of Community Positive Practices, 3*, 25–35.
- Del Mar College (2018). Campus Facts. <https://delmar.edu/becoming-a-viking/discover/about-us/campus-facts.html>
- Devellis, R. (2012). *Scale development theory and applications*. Sage Publications.

- Diefenbach, D. L. (1997). The portrayal of mental illness on prime-time television. *Journal of Community Psychology*, 25(3), 289–302. [https://doi.org/10.1002/\(SICI\)1520-6629\(199705\)25:3<289::AID-JCOP5>3.0.CO;2-R](https://doi.org/10.1002/(SICI)1520-6629(199705)25:3<289::AID-JCOP5>3.0.CO;2-R)
- Diehl, M., & Hay, E. L. (2010). Risk and resilience factors in coping with daily stress in adulthood: The role of age, self-concept incoherence, and personal control. *Developmental Psychology*, 46(5), 1132–1146. <https://doi.org/10.1037/a0019937>.
- Dimitrov, D. M. (2012). *Statistical methods for validation of assessment scale data in counseling and related fields*. American Counseling Association.
- Downing, S. M., & Haladyna, T. M. (1997). Test item development: Validity evidence from quality assurance procedures. *Applied Measurement in Education*, 10(1), 61–82. [https://doi.org/10.1207/s15324818ame1001\\_4](https://doi.org/10.1207/s15324818ame1001_4)
- Duplechain, R., Reigner, R., & Packard, A. (2008). Striking differences: The impact of moderate and high trauma on reading achievement. *Reading Psychology*, 29(2), 117–136. <https://doi.org/10.1080/02702710801963645>
- Ellis, A., & Dryden, W. (1987). *The practice of rational-emotive therapy (RET)*. Springer Publishing Co.
- Erford, B. T. (2013). *Assessment for counselors* (2nd ed.). Cengage Wadsworth.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Everitt, B. S. (1975). Multivariate analysis: The need for data, and other problems. *British Journal of Psychiatry*, 126, 257–240. <https://doi.org/10.1192/bjp.126.3.237>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Sage.

- Ferrari, A. J., Norman, R. E., Freedman, G., Baxter, A. J., Pirkis, J. E., Harris, M. G., & Page, A. (2014). The burden attributable to mental and substance use disorders as risk factors for suicide: Findings from the global burden of disease study 2010. *PloS One*, *9*(4), <https://doi.org/10.1371/journal.pone.0091936>
- Flatt, A. K. (2013). A suffering generation: Six factors contributing to the mental health crisis in North American higher education, *College Quarterly*, *16*, 1–17.
- Frieze, S. (2015). How trauma affects student learning and behaviour. *BU Journal of Graduate Studies in Education*, *7*(2), 27–34.
- Funk, M., Minoletti, A., Drew, N., Taylor, J., & Saraceno, B. (2006). Advocacy for mental health: Roles for consumer and family organizations and governments. *Health Promotion International*, *21*(1), 70–75. <https://doi.org/10.1093/heapro/dai031>
- Furnham, A. (1986). Response bias, social desirability and dissimulation. *Personality and Individual Differences*, *7*(3), 385–400. [https://doi.org/10.1016/0191-8869\(86\)90014-0](https://doi.org/10.1016/0191-8869(86)90014-0)
- Garnezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, *55*(1), 97–111. <https://doi.org/10.2307/1129837>
- Gerlock, A. A., Grimesey, J., & Sayre, G. (2014). Military-related posttraumatic stress disorder and intimate relationship behaviors: A developing dyadic relationship model. *Journal of Marital and Family Therapy*, *40*(3), 344–356. <https://doi.org/10.1111/jmft.12017>
- Ginesini, G. (2018). Forced migration: trauma, faith, and resilience. *Social Work & Christianity*, *45*(4), 98–121.

- Gomez, R., McLaren, S., Sharp, M., Smith, C., Hearn, K., & Turner, L. (2015). Evaluation of the bifactor structure of the dispositional hope scale. *Journal of Personality Assessment*, *97*(2), 1–9. <https://doi.org/10.1080/00223891.2014.938158>
- González-Blanch, C., Medrano, L. A., Muñoz-Navarro, R., Ruíz-Rodríguez, P., Moriana, J. A., & Limonero, J. T. (2018). Factor structure and measurement invariance across various demographic groups and over time for the PHQ-9 in primary care patients in Spain. *PloS One*, *13*(2), 1–16. <https://doi.org/10.1371/journal.pone.0193356>
- Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Erlbaum
- Green, G., Hayes, C., Dickinson, D., Whittaker, A., & Gilheany, B. (2003). A mental health service users' perspective to stigmatization. *Journal of Mental Health*, *12*, 223–234. <https://doi.org/10.1080/0963823031000118212>
- Guyon-Harris, K., Ahlfs-Dunn, S., & Huth-Bocks, A. (2017). PTSD symptom trajectories among mothers reporting interpersonal trauma: Protective factors and parenting outcomes. *Journal of Family Violence*, *32*(7), 657–667. <https://doi.org/10.1007/s10896-017-9934-3>
- Hanel, P. H., & Vione, K. C. (2016). Do student samples provide an accurate estimate of the general public?. *PloS One*, *11*(12), e0168354. <https://doi.org/10.1371/journal.pone.0168354>
- Hassija, C. M., Garvert, D. W., & Cloitre, M. (2015). Brief report: Symptoms of PTSD, coping strategies, and social adjustment among survivors of early life interpersonal trauma. *Journal of Aggression, Maltreatment & Trauma*, *24*(5), 520–531. <https://doi.org/10.1080/10926771.2015.1029178>

- Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment*, 7(3), 238–247. <https://doi.org/10.1037/1040-3590.7.3.238>
- Henderson, D. X., & Greene, J. (2014). Using mixed methods to explore resilience, social connectedness, and re-suspension among youth in a community-based alternative-to-suspension program. *International Journal of Child Youth and Family Studies*, 5(3), 423–446. <https://doi.org/10.18357/ijcyfs.hendersondx.532014>
- Hoelterhoff, M., & Chung, M. (2017). Death anxiety resilience: A mixed methods investigation. *Psychiatric Quarterly*, 88(3), 635–651. <https://doi.org/10.1007/s11126-016-9483-6>
- Hung, Y. W., Bachani, A. M., Tol, W., Musci, R., & Aketch, S. (2019). Trauma exposure, posttraumatic stress disorder symptoms trajectory, and disability level among hospitalized injury survivors in Kenya. *Journal of Traumatic Stress*, 32(1), 108–118. <https://doi.org/10.1002/jts.22373>
- Hunter, A. J., & Chandler, G. E. (1999). Adolescent resilience. *The Journal of Nursing Scholarship*, 31(3), 243–247. <https://doi.org/10.1111/j.1547-5069.1999.tb00488.x>
- Johnson, N. B., Hayes, L. D., Brown, K., Hoo, E. C., & Ethier, K. A. (2014). CDC National Health Report: Leading causes of morbidity and mortality and associated behavioral risk and protective factors-United States, 2005-2013. *MMWR: Morbidity & Mortality Weekly Report*, 63(4), 3–27.
- Jones, J. M., Ali, M. M., Mutter, R., Mosher Henke, R., Gokhale, M., Marder, W., & Mark, T. (2018). Factors that affect choice of mental health provider and receipt of outpatient mental health treatment. *The Journal of Behavioral Health Services & Research*, 45(4), 614–626. <https://doi.org/10.1007/s11414-017-9575-6>

- Jones, N. M., Garfin, D. R., Holman, E. A., & Silver, R. C. (2016). Media use and exposure to graphic content in the week following the Boston marathon bombings. *American Journal of Community Psychology, 58*(1/2), 47–59. <https://doi.org/10.1002/ajcp.12073>
- Jordan, J. V. (2000). The role of mutual empathy in relational cultural therapy. *Journal of Clinical Psychology, 56*(8), 1005–1016. <https://doi.org/10.1002/1097-4679>
- Kahn, J. H. (2006). Factor analysis in counseling psychology research, training, and practice: Principles, advances, and applications. *The Counseling Psychologist, 34*(5), 684–718. <https://doi.org/10.1177/0011000006286347>
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141–151. <https://doi.org/10.1177/001316446002000116>
- Kantor, V., Knefel, M., & Lueger-Schuster, B. (2017). Perceived barriers and facilitators of mental health service utilization in adult trauma survivors: A systematic review. *Clinical Psychology Review, 52*, 52–68. <https://doi.org/10.1016/j.cpr.2016.12.00>
- Kaurin, A., Schönfelder, S., & Wessa, M. (2018). Self-compassion buffers the link between self-criticism and depression in trauma-exposed firefighters. *Journal of Counseling Psychology, 65*(4), 453–462. <https://doi.org/10.1037/cou0000275>
- Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Benjet, C., Bromet, E. J., Cardoso, G., & Degenhardt, L. (2017). Trauma and PTSD in the WHO world mental health surveys. *European Journal of Psychotraumatology, 8* (5), 1353383–16. <https://doi.org/10.1080/20008198.2017.1353383>
- Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using

- DSM-IV and DSM-5 Criteria. *Journal of Traumatic Stress*, 26(5), 537–547.  
<https://doi.org/10.1002/jts.21848>
- Kim-Cohen, J., Moffitt, T. E., Caspi, A., & Taylor, A. (2004). Genetic and environmental processes in young children's resilience and vulnerability to socioeconomic deprivation. *Child Development*, 75(3), 651–668. <https://doi.org/10.1111/j.1467-8624.2004.00699.x>
- Kirmani, M. N., Sharma, P., Anas, M., & Sanam, R. (2015). Hope, resilience and subjective well-being among college going adolescent girls. *International Journal of Humanities & Social Science Studies*, 2(1), 262–270.
- Kobasa S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology*, 37(1), 1–11. <https://doi.org/10.1037/0022-3514.37.1.1>
- Kost, R. G., & de Rosa, J. C. (2018). Impact of survey length and compensation on validity, reliability, and sample characteristics for Ultrashort-, Short-, and Long-Research Participant Perception Surveys. *Journal of Clinical and Translational Science*, 2(1), 31–37. <https://doi.org/10.1017/cts.2018.18>
- Kress, V. E., Haiyasoso, M., Zoldan, C. A., Headley, J. A., & Trepal H. (2018). The use of Relational-Cultural theory in counseling clients who have traumatic stress disorder. *Journal of Counseling and Development*, 96(1), 106–114.  
<https://doi.org/10.1002/jcad.12182>
- Kubany, E. S., Leisen, M. B., Kaplan, A. S., Watson, S. B., Haynes, S. N., Owens, J. A., & Burns, K. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma-exposure: The Traumatic Life Events Questionnaire. *Psychological Assessment*, 12(2), 210–224. <https://doi.org/10.1037/1040-3590.12.2.210>

- Lambie, G. W., Blount, A. J., & Mullen, P. R. (2017). Establishing content-oriented evidence for psychological assessments. *Measurement and Evaluation in Counseling and Development, 50*(4), 210–216. <https://doi.org/10.1080/07481756.2017.1336930>
- Lasalvia, A., Zoppei, S., Van Bortel, T., Bonetto, C., Cristofalo, D., Wahlbeck, K., & Bacle, S. V. (2013). Global pattern of experienced and anticipated discrimination reported by people with major depressive disorder: A cross-sectional survey. *The Lancet, 381*(9860), 55–62. [https://doi.org/10.1016/S0140-6736\(12\)61379-8](https://doi.org/10.1016/S0140-6736(12)61379-8)
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*, 563–575. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>
- Lee, J. S. (2019). Perceived social support functions as a resilience in buffering the impact of trauma exposure on PTSD symptoms via intrusive rumination and entrapment in firefighters. *PloS One, 14*(8), 1–14. <https://doi.org/10.1371/journal.pone.0220454>
- Lee, R. M., & Robbins S. B. (1995). Measuring belongingness: The social connectedness and the social assurance scales. *Journal of Counseling Psychology, 42*, 232–241. <https://doi.org/10.1037/0022-0167.42.2.232>
- Lenz, A. S., & Wester, K. L. (2017). Development and evaluation of assessments for counseling professionals. *Measurement and Evaluation in Counseling and Development, 50*(4), 201–209. <https://doi.org/10.1080/07481756.2017.1361303>
- Lubin, H., Loris, M., Burt, J., & Johnson, D. R. (1998). Efficacy of psychoeducational group therapy in reducing symptoms of posttraumatic stress disorder among multiply traumatized women. *American Journal of Psychiatry, 155*(9), 1172–1177. <https://doi.org/10.1176/ajp.155.9.1172>

- Luthar, S. S. (2006). Resilience in development: A synthesis of research across five decades. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (pp. 739–795). John Wiley & Sons Inc.
- Lyons, J. (1991). Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress, 4*(1), 93–111. <https://doi.org/10.1002/jts.2490040108>
- Madsen, M. D., & Abell, N. (2010). Trauma Resilience Scale: Validation of protective factors associated with adaptation following violence. *Research on Social Work Practice, 20*(2), 223–233. <https://doi.org/10.1177/1049731509347853>
- Mak, W. W., Ng, I. S., & Wong, C. C. (2011). Resilience: Enhancing well-being through the positive cognitive triad. *Journal of Counseling Psychology, 58*(4), 610–617. <https://doi.org/10.1037/a0025195>
- Martinez-Torteya, C., Bogat, G. A., von Eye, A., & Levendosky, A. A. (2009). Resilience among children exposed to domestic violence: The role of risk and protective factors. *Child Development, 80*(2), 562–577. <https://doi.org/10.1111/j.1467-8624.2009.01279.x>
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *Century psychology series. The achievement motive*. Appleton-Century-Crofts. <https://doi.org/10.1037/11144-000>
- McLouglin, L., Spears, B., & Taddeo, C. (2018). The importance of social connection for cybervictims: How connectedness and technology could promote mental health and wellbeing in young people. *International Journal of Emotional Education, 10*(1), 5–24.
- McPherson, J. (2012). Does narrative exposure therapy reduce PTSD in survivors of mass violence? *Research on Social Work Practice, 22*(1), 29–42. <https://doi.org/10.1177/1049731511414147>

- Menon, I. S., Kumar Sharma, M., Chandra, P. S., & Thennarasu, K. (2014). Social networking sites: An adjunctive treatment modality for psychological problems. *Indian Journal of Psychological Medicine, 36*(3), 260–263. <https://doi.org/10.4103/0253-7176.135374>
- Meyer, L. K., & Stanick, C. F. (2018). College students' relationship between trauma and disordered eating. *Journal of College Student Psychotherapy, 32*(3), 242–250. <https://doi.org/10.1080/87568225.2017.1396517>
- Miller, J. B. (1986). *What do we mean by relationships?* Wellesley, MA: Wellesley College, Stone Center for Developmental Services and Studies.
- Mills, S. D., Fox, R. S., Malcarne, V. L., Roesch, S. C., Champagne, B. R., & Sadler, G. R. (2014). The psychometric properties of the Generalized Anxiety Disorder-7 Scale in Hispanic Americans with English or Spanish language preference. *Cultural Diversity and Ethnic Minority Psychology, 20*(3), 463–468. <https://doi.org/10.1037/a0036523>
- Min, J. A., Lee, N. B., Lee, C. U., Lee, C., & Chae, J. H. (2012). Low trait anxiety, high resilience, and their interaction as possible predictors for treatment response in patients with depression. *Journal of Affective Disorders, 137*(1-3), 61–69. <https://doi.org/10.1016/j.jad.2011.12.026>.
- Mokruue, K., O'Neill, P., Weiden, P., Friedman, S., & Cavaleri, M. (2011). Trauma survivors' emotional distress and barriers to early psychological intervention in an inner-city acute surgical trauma service. *Journal of Aggression, Maltreatment & Trauma, 20*(1), 58–69. <https://doi.org/10.1080/10926771.2011.537600>
- Morgado, F. F. R., Meireles, J. F. F., Neves, C. M., Amaral, A. C. S., & Ferreira, M. E. C. (2017). Scale development: Ten main limitations and recommendations to improve future

- research practices. *Psicologia: Reflexão e Crítica*, 30(1), 1–20.  
<https://doi.org/10.1186/s41155-016-0057-1>
- Morote, R., Hjemdal, O., Krysinska, K., Uribe, P. M., & Corveleyn, J. (2017). Resilience or hope? Incremental and convergent validity of the Resilience Scale for Adults (RSA) and the Herth Hope Scale (HHS) in the prediction of anxiety and depression. *BMC Psychology*, 5, 1–13. <https://doi.org/10.1186/s40359-017-0205-0>
- Mukaka M. M. (2012). Statistics corner: A guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal: The Journal of Medical Association of Malawi*, 24(3), 69–71.
- Muñoz-Navarro, R., Cano-Vindel, A., Moriana, J. A., Medrano, L. A., Ruiz-Rodríguez, P., Agüero-Gento, L., & Ramírez-Manent, J. I. (2017). Screening for generalized anxiety disorder in Spanish primary care centers with the GAD-7. *Psychiatry Research*, 256, 312–317. <https://doi.org/10.1016/j.psychres.2017.06.023>
- Mvududu, N. H., & Sink, C. A. (2013). Factor analysis in counseling research and practice. *Counseling Outcome Research and Evaluation*, 4(2), 75–98.  
<https://doi.org/10.1177/2150137813494766>
- Nairn, R. G. (2007). Media portrayals of mental illness, or is it madness? A review. *Australian Psychologist*, 42(2), 138–146. <https://doi.org/10.1080/00050060701280623>
- Nixon, R. D. V., Sterk, J., & Pearce, A. (2012). A randomized trial of cognitive behaviour therapy and cognitive therapy for children with posttraumatic stress disorder following single-incident trauma. *Journal of Abnormal Child Psychology*, 40, 327–337.  
<https://doi.org/10.1007/s10802-011-9566-7>

- Owens, G. P. (2016). Predictors of posttraumatic growth and posttraumatic stress symptom severity in undergraduates reporting potentially traumatic events. *Journal of Clinical Psychology, 72*(10), 1064–1076. <https://doi.org/10.1002/jclp.22309>
- Pavlov, I. P., & Thompson, W. H. (1910). *The work of the digestive glands*. C. Griffin & Company.
- Paykel, E. S., Tylee, A., Wright, A., Priest, R. G., Rix, S., & Hart, D. (1997). The defeat depression campaign: Psychiatry in the public arena. *American Journal of Psychiatry, 154*, 59–65. <https://doi.org/10.1176/ajp.154.6.59>
- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Sage.
- Ponce, G. E., Madewell, A. N., & Brown, M. E. (2016). Resilience in men and women experiencing sexual assault or traumatic stress: Validation and replication of the scale of protective factors. *Journal of Traumatic Stress, 29*(6), 537–545. <https://doi.org/10.1002/jts.22148>
- Ponce-Garcia, E., Madewell, A. N., & Kennison, S. M. (2015). The development of the Scale of Protective Factors: Resilience in a violent trauma sample. *Violence and Victims, 30*(5), 735–755. <https://doi.org/10.1891/0886-6708>
- Pullins, L. G., & Jones, J. D. (2006). Parental knowledge of child sexual abuse symptoms. *Journal of Child Sexual Abuse, 15*(4), 1–18. [https://doi.org/10.1300/J070v15n04\\_01](https://doi.org/10.1300/J070v15n04_01)
- Rahat, E., & Ilhan, T. (2016). Coping styles, social support, relational self-construal, and resilience in predicting students' adjustment to university life. *Educational Sciences: Theory and Practice, 16*(1), 187–208. <https://doi.org/10.12738/estp.2016.1.0058>

- Reches, R., & Sondaite, J. (2017). Resilience to trauma by Holocaust survivors: Factors in surviving, coping and thriving. *Holocaust. Studii și Cercetări*, 9(10), 211–226.
- Ritchie, H., & Roser, M. (2020). Mental Health. *Published online at OurWorldInData.org*.  
<https://ourworldindata.org/mental-health>
- Robinson, P., Turk, D., Jilka, S., & Cella M. (2019). Measuring attitudes towards mental health using social media: Investigating stigma and trivialization. *Social Psychiatry and Psychiatric Epidemiology*, 54(1), 51–58. <https://doi.org/10.1007/s00127-018-1571-5>
- Rolstad, S., Adler, J., & Ryden, A. (2011). Response burden and questionnaire length: Is shorter better? A review and meta-analysis. *Value in Health*, 14, 1101–1108.  
<https://doi.org/10.1016/j.jval.2011.06.003>
- Roy, A., Carli, V., & Sarchiapone, M. (2011). Resilience mitigates the suicide risk associated with childhood trauma. *Journal of Affective Disorders*, 133(3), 591–594.  
<https://doi.org/10.1016/j.jad.2011.05.006>
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. *Annals of the Academy of Medicine, Singapore*, 8(3), 324–338.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147(6), 598–611.  
<https://doi.org/10.1192/bjp.147.6.598>
- Rutter, M. (1999). Resilience concepts and findings: Implications for family therapy. *Journal of Family Therapy*, 21(2), 119–144. <https://doi.org/10.1111/1467-6427.00108>
- Saavedra, L. M., Silverman, W. K., Morgan-Lopez, A. A., & Kurtines, W. M. (2010). Cognitive behavioral treatment for childhood anxiety disorders: Long-term effects on anxiety and

- secondary disorders in young adulthood. *Journal of Child Psychology and Psychiatry*, 51(8), 924–934. <https://doi.org/10.1111/j.1469-7610.2010.02242.x>
- Scali, J., Gandubert, C., Ritchie, K., Soulier, M., Ancelin, M. L., & Isabelle C. (2012). Measuring resilience in adult women using the 10-items Connor-Davidson Resilience Scale (CD-RISC). Role of trauma exposure and anxiety disorders. *PloS One*, 7(6), 1–7. <https://doi.org/10.1371/journal.pone.0039879>
- Schwerdtfeger Gallus, K. L., Shreffler, K. M., Merten, M. J., & Cox, R. B. (2015). Interpersonal trauma and depressive symptoms in early adolescents: Exploring the moderating roles of parent and school connectedness. *Journal of Early Adolescence*, 35(7), 990–1013. <https://doi.org/10.1177/0272431614548067>
- Schwartz, R. C., Prete-Brown, T., Pacino, H., Nisky, J., LaMarco, J., Rotuno, M., & Rogers, J. R. (2016). Collaboration between managed care and mental health agency staff: Consumer satisfaction, medication compliance, psychosocial improvement, and cost outcomes. *Journal of Counselor Practice*, 7(2), 78–96. <https://doi.org/10.22229/cmc294361>
- Shorey, H. S., Snyder, C. R., Yang, X., & Lewin, M. R. (2003). The role of hope as a mediator in recollected parenting, adult attachment, and mental health. *Journal of Social and Clinical Psychology*, 22(6), 685–715. <https://doi.org/10.1521/jscp.22.6.685.22938>
- Shrotryia, V. K., & Dhanda, U. (2019). Content validity of assessment instrument for employee engagement. *SAGE Open*, 9, 1–7. <https://doi.org/10.1177/2158244018821751>
- Simmen-Janevska, K., Brandstätter, V., & Maercker, A. (2012). The overlooked relationship between motivational abilities and posttraumatic stress: A review. *European Journal of Psychotraumatology*, 3(1), Article 18560-19. <https://doi.org/10.3402/ejpt.v3i0.18560>

- Sink, C., & Stroh, H. (2006). Practical significance: The use of effect sizes in school counseling research. *Professional School Counseling, 9*, 401–411.  
<https://doi.org/10.5330/prsc.9.4.283746k664204023>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The Brief Resilience Scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine, 15*(3), 194–200. <https://doi.org/10.1080/10705500802222972>
- Smith, A. J., Felix, E. D., Benight, C. C., & Jones, R. T. (2017). Protective factors, coping appraisals, and social barriers predict mental health following community violence: A prospective test of social cognitive theory. *Journal of Traumatic Stress, 30*(3), 245–253.  
<https://doi.org/10.1002/jts.22197>
- Smith-Marek, E. N., Durtschi, J., Brown, C., & Dharnidharka, P. (2016). Exercise and diet as potential moderators between trauma, posttraumatic stress, depression, and relationship quality among emerging adults. *American Journal of Family Therapy, 44*(2), 53–66.  
<https://doi.org/10.1080/01926187.2016.1145080>
- Smith, R. L., Karaman, M., Balkin, R., & Tarwar, S. (2019). Psychometric properties and confirmatory factor analysis of the achievement motivation measure. *British Journal Guidance and Counseling Careers Research and Advisory Centre (Cambridge, England), Taylor & Francis Routledge*. <https://doi.org/10.1080/03069885.2019>
- Smith, P., Yule, W., Perrin, S., Tranah, T., Dagleish, T., & Clark, D. M. (2007). Cognitive-behavioral therapy for PTSD in children and adolescents: A preliminary randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(8), 1051–1061. <https://doi.org/10.1097/CHI.0b013e318067e288>.

- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., & Sigmon, S. T. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570–585.  
<https://doi.org/10.1037//0022-3514.60.4.570>
- Snyder, C. R. (1994). *The psychology of hope: You can get there from here*. Free Press.
- Solano, J. P. C., da Silva, A. G., Soares, I. A., Ashmawi, H. A., & Vieira, J. E. (2016). Resilience and hope during advanced disease: A pilot study with metastatic colorectal cancer patients. *BMC Palliative Care*, *15*(1), 1–8. <https://doi.org/10.1186/s12904-016-0139-y>
- Sousa, T. V., Viveiros, V., Chai, M. V., Vicente, F. L., Jesus, G., Carnot, M. J., & Ferreira, P. L. (2015). Reliability and validity of the Portuguese version of the Generalized Anxiety Disorder (GAD-7) scale. *Health & Quality of Life Outcomes*, *13*(1), 1–8.  
<https://doi.org/10.1186/s12955-015-0244-2>
- Spitzer, R. L., Kroenke, K., Woudiams, J. B. W., & Lowe, B. (2006). A brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine*, *166*(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Springer, K. W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. *The International Journal*, *31*(5), 517–530.  
<https://doi.org/10.1016/j.chiabu.2007.01.003>
- Strunk, D. R., DeRubeis, R. J., Chiu, A. W., & Alvarez, J. (2007). Patients' competence in and performance of cognitive therapy skills: Relation to the reduction of relapse risk following treatment for depression. *Journal of Consulting and Clinical Psychology*, *75*(4), 523–530. <https://doi.org/10.1037/0022-006X.75.4.523>

- Suldo, S. M., Shaunessy, E., Thalji, A., Michalowski, J., & Shaffer, E. (2009). Sources of stress for students in high school college preparatory and general education programs: Group differences and associations with adjustment. *Adolescence*, *44*(176), 925–948.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson.
- Texas A&M University-Corpus Christi (2018). Fast Facts. Retrieved from <https://www.tamucc.edu/about/facts.html>.
- Texas A&M University- Kingsville (2020). Our History. Retrieved from <https://www.tamuk.edu/about/index.html>
- Thoma, N. C., & McKay, D. (Eds.). (2015). *Working with emotion in cognitive-behavioral therapy: Techniques for clinical practice*. The Guilford Press.
- Thorndike, E.L. (1911). *Animal Intelligence*. Macmillan
- Trapnell, P. D., & Campbell J. D. (1999). Private self-consciousness and the Five Factor Model of Personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology*, *76*(2), 284–304. <https://doi.org/10.1037/0022-3514.76.2.284>
- Tras, Z., Öztemel, K., & Kagnici, E. (2019). A review on university students’ resilience and levels of social exclusion and forgiveness. *International Education Studies*, *12*(10), 50–59. <https://doi.org/10.5539/ies.v12n10p50>
- U.S. Census Bureau (2018). Health Insurance Coverage in the United States: 2018. <https://www.census.gov/library/publications/2019/demo/p60-267.html>.
- Van Woudenberg, C., Voorendonk, E. M., Bongaerts, H., Zoet, H. A., Verhagen, M., Lee, C. W., & De Jongh, A. (2018). Effectiveness of an intensive treatment program combining prolonged exposure and eye movement desensitization and reprocessing for severe post-

- traumatic stress disorder. *European Journal of Psychotraumatology*, 9(1), 1–11.  
<https://doi.org/10.1080/20008198.2018.1487225>
- Watson, J. B. (1913). Psychology as the behaviorist views it. *Psychological Review*, 20(2), 158–177. <https://doi.org/10.1037/h0074428>
- Watson, J. C. (2017). Establishing evidence for internal structure using exploratory factor analysis. *Measurement and Evaluation in Counseling and Development*, 50(4), 232–238.  
<https://doi.org/10.1080/07481756.2017.1336931>
- Weems, G. H., & Onwuegbuzie, A. J. (2001). The impact of midpoint responses and reverse coding on survey data. *Measurement and Evaluation in Counseling and Development*, 34(3), 166–176. <https://doi.org/10.1080/07481756.2002.12069033>
- Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science*, 4(3), 81–84. <https://doi.org/10.1111/1467-8721.ep10772327>
- Werner, E. E., & Smith, R. S. (1982). *Vulnerable, but invincible: A longitudinal study of resilient children and youth*. McGraw-Hill.
- Wilson, C. A., Babcock, S. E., & Saklofske, D. H. (2019). Sinking or swimming in an academic pool: A study of resiliency and student success in first-year undergraduates. *Canadian Journal of Higher Education*, 49(1), 60–84. <https://doi.org/10.7202/1060824ar>
- Wolfe, E. W., & Smith, E. V. (2007). Instrument development tools and activities for measure validity using Rasch models: Part I instrument development tools. *Journal of Applied Measurement*, 8, 97–123.
- Woolman, E. O., Becker, M. M., & Klanecky, A. K. (2015). PTSD symptoms mediate academic stress and drinking to cope in college students. *Journal of Drug Education*, 45(2), 96–112. <https://doi.org/10.1177/0047237915607282>

Wray, L., Szymanski, B., Kearney, L., & McCarthy, J. (2012). Implementation of primary care-mental health integration services in the veteran's health administration: Program activity and associations with engagement in specialty mental health services. *Journal of Clinical Psychology in Medical Settings*, *19*(1), 105–116. <https://doi.org/10.1007/s10880-011-9285-9>

Zhang, L. (2018). Veterans going to college: Evaluating the impact of the post-9/11 GI bill on college enrollment. *Educational Evaluation and Policy Analysis*, *4*, 82–102. <https://doi.org/10.3102/0162373717724002>

LIST OF APPENDICES

APPENDICES	PAGE
Appendix A. Information Sheet.....	84
Appendix B. Recruitment Script.....	87
Appendix C. Demographic Questionnaire.....	89
Appendix D. Brief Trauma Resiliency Scale.....	90
Appendix E. Adult Dispositional Hope Scale.....	92
Appendix F. Achievement Motivation Measure.....	93
Appendix G. Brief Resilience Scale... ..	94
Appendix H. GAD-7.....	95

## **Appendix A: Information Sheet**

### **Introduction**

The purpose of this form is to provide you information to help to make the decision on whether to participate in this research study.

### **Why is this research being done?**

The goal of this research study is to provide a way to assess resilience to traumatic experiences. The quantitative study seeks to gain insight about the factors that contribute to resilience of traumatic experiences and the relationship to other variables.

### **Who can be in this study?**

You are being asked to participate in this research study because the initial validation of the instrument is focused on college students.

To be eligible you must meet the following criteria:

- Must be 18 years or older
- Must be capable of providing consent.
- Must be enrolled in college
- Must not have a learning disability
- Must be fluent in English.

### **What will I be asked to do?**

Being in this study involves completion of a demographic questionnaire, initial item pool of the Brief Trauma Resilience Scale, Adult Dispositional Hope Scale (Snyder et al., 1991), General Anxiety Disorder-7 (Spitzer, Kroenke, Williams & Lowe, 2006), Achievement Motivation Measure (Smith, Karaman, Balkin, & Talwar, 2019), and the Brief Resilience Scale (Smith et al., 2008).

If you agree to participate in this study, you will complete a demographic questionnaire and fill out the survey packet taking 30-45 minutes. If at any point you decide to not participate, you can exit the survey.

### **What are the risks involved in this study?**

There are minimal risks in this study. Risks include “Breach of Confidentiality” and potential psychological stress or distress

**Breach of Confidentiality risk:** There is a slight risk of breach of confidentiality. Your confidentiality will be protected to the greatest extent possible. Risk will be mitigated by requesting students do not provide identification information and researchers will use numerical data instead of names providing complete anonymity.

**Psychological stress or distress risk:** There is a small risk to psychological stress or distress. Participants who present with concerns will be provided free counseling resources within their community.

**What are the alternatives to being in this study?**

Instead of being in this study, you may choose not to be in the research study.

**What are the possible benefits of this study?**

There may be no direct benefit to you from being in this research study. By being in this study, you may help researchers develop an instrument measuring an individual's resilience to traumatic experiences. Benefits to society include gathering more knowledge about resilience to traumatic experiences which has limited publications.

**What will I receive if I am in the study?**

You will not receive any payment for participating in this study.

Your teachers may elect to give extra credit for participating in research. This is not provided by the research team and is up to the teacher how much credit is given. The researcher will receive a notification that you have participated in the survey which is completely separate from your responses to the survey. Teachers who are providing extra credit will be provided notification of those who participated.

**Do I have to participate?**

No. **Being in a research study is voluntary.** If you choose not to participate, there will be no penalty or loss of benefits to which you are otherwise entitled.

**What if I change my mind?**

You may quit at any time. There will be no penalty or loss of benefits to which you are otherwise entitled.

You may decide not to participate or quit at any time without your current or future relations with Texas A&M University-Corpus Christi or any cooperating institution being affected.

**Who will know about my participation in this research study?**

This study is anonymous. The information collected from you will not include any identifiers (like names, addresses, phone numbers and social security or individual taxpayer identification (ITIN) numbers). Your identity will not be known by the research team to protect your confidentiality. Please do not include any identifiers in the study documents. If extra credit is offered, your teachers will receive notice of participation by only receiving your name.

All research records will be kept securely. Research records will be seen only by authorized research team members. We will share your information only when we must, will only share the information that is needed, and will ask anyone who receives it from us to protect your privacy. No identifiers linking you to this study will be included.

**Who can I contact with questions about the research?**

You may call Joe Ayala (Doctoral Candidate Researcher) at 361-438-7872, or email [joe.ayala@tamucc.edu](mailto:joe.ayala@tamucc.edu) with questions at any time during the study.

You may also call Dr. Robert Smith (TAMUCC Faculty Member) at 361-825-2307, or email robert.smith@tamucc.edu with any questions you may have.

**Who can I contact about my rights as a research participant?**

You may also call Texas A&M University-Corpus Christi Institutional Review Board (IRB) with questions or complaints about this study at irb@tamucc.edu or 361-825-2497. The IRB is a committee of faculty members, statisticians, researchers, community advocates, and others that ensures that a research study is ethical and that the rights of study participants are protected.

**CONSENT TO PARTICIPATE**

To participate in this research study, read the information sheet and click “I have read this and agree” to consent to participation in the study. Upon agreeing to participate, you will be prompted to complete the demographic sheet and began the survey.

By participating in this study, you are also certifying that you are 18 years or older, capable of providing consent, enrolled in college, do not have a learning disability, and speak fluent English. If you do not agree to participate in the research study, please exit this form and do not fill out the survey.

## **Appendix B: Recruitment Script**

### Recruitment Script

#### Purpose of the Study

I am Joe Ayala a doctoral candidate from the Department of Counseling and Educational Psychology at Texas A & M University-Corpus Christi. The goal of this research study is to provide a way to assess resilience to traumatic experiences. The quantitative study seeks to gain insight about the factors that contribute to resilience of traumatic experiences and the relationship to other variables. If you would like to participate in this study, you will be asked to complete demographic questionnaire and fill out the survey packet taking 30-45 minutes. Your participation in this study is voluntary. You were selected as a possible participant because you meet the criteria of being 18 years or older, capable of providing consent, able to speak fluent English, do not have a learning disability, and enrolled in college.

#### Duration and Location

The study will consist of completing a demographic questionnaire and survey packet. The entire process should take 30 to 45 minutes. You will need computer access to complete the survey either in class or in a location you feel comfortable.

#### Procedures

To participate you will be provided with a link to complete the survey through Qualtrics. Prior to filling out the survey, information will be provided about the study and you must agree to terms to continue with survey.

#### Potential Risks, Discomforts and Anticipated Benefits

The questions of the survey will seek basic demographic information and ask about concepts that apply to you. No distress is expected from participation in this study. However, if you experience any stress please stop and speak with me. If further help is needed, information will be provided about resources within the community. If you decide to take part in the study but then change your mind, you are free to withdraw at any time. Participation is voluntary. If you have any questions about this research please feel free to contact me,

Joe Ayala, Doctoral Candidate, [joe.ayala@tamucc.edu](mailto:joe.ayala@tamucc.edu) or Dr. Robert L. Smith, Regents Professor, [robert.smith@tamucc.edu](mailto:robert.smith@tamucc.edu). If you ever have any questions about your rights as a research participant or possible research-related injuries please feel free to contact the Research Compliance Officer, at (361) 825-2497.

#### Confidentiality

Your name will not appear in any publications or reports produced from this study. All information provided is confidential. Risk will be mitigated by requesting students do not include any identification information and numerical data will be assigned to each participant providing complete anonymity.

#### Consent to Participate

If you decide to participate, you may withdraw at any time without current or future relations with Texas A&M University-Corpus Christi being affected. If at some point you decide not to

answer the questions, you can choose the option to quit the study. After reading the information sheet, you will click “I have read this and agree” to consent to participation in the study.

**Appendix C: Demographic Questionnaire**

**Demographic Questionnaire**

Age: \_\_\_\_

Gender: Male \_\_\_\_ Female \_\_\_\_ Non-Binary \_\_\_\_

Ethnicity: African American \_\_\_\_ Asian American \_\_\_\_ Hispanic or Latino \_\_\_\_  
Native American \_\_\_\_ White, Non- Hispanic \_\_\_\_ Bi-racial \_\_\_\_ Other \_\_\_\_

Marital Status: Single \_\_\_\_ Married \_\_\_\_ Widowed \_\_\_\_ Divorced \_\_\_\_

Degree Seeking: \_\_\_\_\_

Education: Some College \_\_\_\_ Associates/ Certificate \_\_\_\_  
Bachelor's Degree \_\_\_\_ Master Degree \_\_\_\_ PhD \_\_\_\_

*The following question is more personal. Please remember this data is anonymous.*

Have you ever directly experienced a traumatic event: Yes \_\_\_\_ No \_\_\_\_

Have you ever witnessed a traumatic event: Yes \_\_\_\_ No \_\_\_\_

*Rate the following item as it applies to you.*

My spiritual beliefs play a role in coping with life events.

0 – Not at all

1 – A little

2 – A moderate amount

3 – A lot

4 – A great deal

## Appendix D: Brief Trauma Resiliency Scale

### BRIEF TRAUMA RESILIENCY SCALE

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

**(1) strongly disagree, (2) disagree, (3) neutral, (4) agree (5) strongly agree**

1. I trust those closest to me during hard times.
2. During tough times, I know who to reach out to for support.
3. After a traumatic experience, I communicate with others.
4. During tough times, I have a good support system.
5. During a crisis, people make time for me.
6. I bounce back from hardship by connecting with others.
7. I am connected to my community even when things are not going my way.
8. I am aware of my limitations when challenged.
9. I have good coping skills to handle stress.
10. I know who I am despite setbacks.
11. I am able to identify emotions following an emotional experience.
12. I maintain self-respect even when I experience a setback.
13. I remain hopeful following a traumatic experience.
14. I stay connected with others following a bad experience.
15. I am mindful of how I respond to stress.
16. My future is promising despite setbacks.
17. I am confident I can overcome challenges.
18. I am determined to accomplish my goals after a setback.
19. I remain optimistic even when met with obstacles.
20. When I experience hard times, I won't give up.
21. I believe I am worthy despite experiencing setbacks.
22. Even in the toughest of situations, I am able to see some good.
23. I am able to manage stress well.

24. I use alcohol or drugs to manage stress.
25. I remain focused despite something bad happening.
26. Even in the toughest of situations, I maintain good sleep habits.
27. Despite setbacks, I try my hardest to bounce back.
28. Even when I am stressed, I remain accountable.

### **Appendix E: Adult Dispositional Hope Scale**

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., & Sigmon, S. T. (1991).

The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, 60(4), 570–585.

<https://doi.org/10.1037//0022-3514.60.4.570>

Disclaimer: Instrument Not Included Due to Copyright Protection

## Appendix F: Achievement Motivation Measure

The Achievement Motivation Measure, (AMM), assesses achievement motivation using two subscales. It is a psychometrically sound self-report questionnaire consisting of 13 items. Items are answered on a 5-point Likert-type format with values ranging from 1 to 5.

The Achievement Thoughts subscale includes items as,

“I have a strong desire to be a success in the things I set out to do.”

“While working on a task, I think of how it will feel when the task is successfully completed”

The Achievement Behavior subscale includes items as,

“I can keep my mind on a task for a long time.”

“I like to undertake projects that involve some risk.”

### Reference

Smith, R. L., Karaman, M., Balkin, R., & Tarwar, S. (2019). Psychometric properties and confirmatory factor analysis of the achievement motivation measure. *British Journal Guidance and Counseling Careers Research and Advisory Centre (Cambridge, England), Taylor & Francis Routledge*, <https://doi.org/10.1080/03069885.2019>.

*For further information contact the instrument developer: Dr. Robert L. Smith, Regents Professor, Department of Counseling and Educational Psychology, Texas A&M University-Corpus Christi, Corpus Christi, TX. 78412, robert.smith@tamucc.edu*

## Appendix G: Brief Resilience Scale

### BRIEF RESILIENCE SCALE

<b>Please respond to each item by marking <u>one box per row</u></b>		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>BRS 1</b>	I tend to bounce back quickly after hard times	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<b>BRS 2</b>	I have a hard time making it through stressful events.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
<b>BRS 3</b>	It does not take me long to recover from a stressful event.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<b>BRS 4</b>	It is hard for me to snap back when something bad happens.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
<b>BRS 5</b>	I usually come through difficult times with little trouble.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<b>BRS 6</b>	I tend to take a long time to get over set-backs in my life.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1

**Scoring:** Add the responses varying from 1-5 for all six items giving a range from 6-30. Divide the total sum by the total number of questions answered.

**My score:** \_\_\_\_\_ item average / 6

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine, 15*(3), 194-200.

## Appendix H: GAD-7 Scale

### Generalized Anxiety Disorder 7-item (GAD-7) Scale

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
<i>Add the score for each column</i>	+	+	+	
Total Score ( <i>add your column scores</i> ) =				

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all \_\_\_\_\_ Somewhat difficult \_\_\_\_\_ Very difficult \_\_\_\_\_  
 Extremely difficult \_\_\_\_\_

Source: Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder. *Arch Intern Med.* 2006;166:1092-1097.

## PART V: PROJECT REPORT

### **Changes to Research**

Overall, I followed most procedures for data analysis that were reported in the proposal. There were a few minor changes that took place in regards to the demographic questionnaire and data analysis. Within this section, I will document changes made to the project in an effort to improve the study design.

#### **Change Based on Proposal Feedback**

During proposal a dissertation committee member offered a suggestion to include an item relevant to spirituality. In consideration of this suggestion, I chose to add one item to the demographic questionnaire. The item asks participants to self-rate their inclusion of spiritual beliefs while coping with life events.

#### **Data Analysis Changes**

In regards to data analysis, I added another method to assess for normality and outliers. Rather than using z-scores to assess for normality, I opted to include the Shapiro Wilk test and skewness statistics to assess for normality. The normality assumption was met if the  $p$  value was above .05 and skewness was deemed acceptable if within the absolute value of 1 (Field, 2013). Outliers were identified using box plots and stem-and-leaf plots. Also, I chose to use SPSS series mean technique instead of multiple imputation to replace missing values. Finally, I opted to use Promax rotation instead of Direct Oblimin oblique rotation. When data analyses took place, the Direction Oblimin Oblique rotation produced negative statistics that were not indicative of the construct being studied. After choosing using the Promax rotation method a simplified factorial structure of the BTRS was presented.

## **Journal of Counseling Research and Practice**

The journal I am targeting for manuscript submission is the Journal of Counseling Research and Practice (JCRP). The journal is published by the Mississippi Counseling Association (MCA), a division of the American Counseling Association.

The MCA agenda is to promote professional growth and enhance skills of counselors. JCRP is a peer reviewed journal that publishes manuscripts annually from counselor educators, practitioners, and counseling education students. The goal of JCRP is to enhance research, encourage best practice among counselors, enhance scholarly agendas, and offer creative and groundbreaking strategies. This journal aligns with my dissertation topic that targets the development of a scale to measure trauma resiliency. This attempt to enhance research is supported by JCRP which offers a platform for counseling education students to publish their graduate level work.

Manuscript qualifications for submission must fall within one the following categories: (1) Research and Theory, (2) Innovative Practices/Current Issues, (3) Multicultural Issues, and (4) Graduate Student Works. Manuscripts within research and theory include original qualitative or quantitative counseling related research. Innovative practice/current issues topics must describe counselor practices that were developed and/or implemented. Submissions within this category should describe new techniques, strategies, skills, and/or activities. Multicultural topics must be about research, innovated approaches or current issues related to race, ethnicity, gender, sexual orientation, religion, and/or socio-economic status. Manuscripts from graduate students are accepted if they include original research performed during graduate training.

JCRP provides vague rules pertaining to initial submission of manuscripts because if approved manuscripts are converted into a PDF file for publication and reformatted. Initial submission guidelines require manuscripts to follow 7<sup>th</sup> edition APA guidelines for formatting and citations. Maximum length of manuscript submissions should not exceed 25 pages including references, tables, and figures. A title page including the title, authors name, and institutional affiliation should be submitted along with the manuscript but as a separate first page document. An abstract will be submitted containing 50 to 100 words. Manuscripts are submitted electronically by attaching a Microsoft Word document and sent to the email provided on the website. All submitted work must be original and cannot have been published or submitted elsewhere for publication. Authors must maintain participant anonymity and should refrain from providing identifying information about participants.

The JCRP is an appropriate fit for submission of this manuscript because it fits the qualification criteria outlined by JCRP. My dissertation topic falls within two acceptable qualification criteria for submission including graduate student work and research and theory. The graduate dissertation topic aims to advance research by offering a way to measure resilience to traumatic experiences. This publication platform offers an opportunity for submission by a graduate student and aligns with their agenda of promoting original counseling related research. The quantitative research topic will be written to align with manuscript submission guidelines provided by JCRP.

### **Committee Proposal Feedback and Student Response**

All dissertation committee members attended the dissertation proposal meeting. Upon conclusion of the meeting, three committee members offered feedback and suggestions. I notated

feedback and suggestions from dissertation committee members and recorded my responses in this section.

Table 2.

*Dissertation Proposal Hearing Comments and Responses*

<b>Comments from Committee Members</b>	<b>Responses</b>
1) Reword the purpose of the instrument to describe a way to measure trauma resiliency in the significance of study section. [Watson]	I clarified the purpose of the instrument within the significant of study and purpose of study sections.
2) Provide a clear description conceptualizing the trauma resiliency term. [Watson]	Clarified definition of “trauma resiliency” and ensured consistency throughout chapters and manuscript.
3) Clarify qualification criteria for experts as “clinical experience.” [Watson]	Described expert criteria to reflect the necessity of having clinical experience in working with trauma survivors.
4) Provide more details about retaining items by describing the method and formula used for expert analysis. [Watson]	I provided details about item retention under the subheading <i>Quantitative and Qualitative Review of the Initial Item Pool</i> .
5) Provide details about how items were created. [Ricard]	I provided more detail about how items were created within the section titled <i>Step 1: Create an Item Pool</i> .

<p>6) Make the connection of resilience as being key to responding to trauma in Chapter 1. [Ricard]</p>	<p>I added a paragraph to Chapter 1 about the evolution of the resilience construct and how it relates to responding to trauma.</p>
<p>7) Describe population as at-risk for trauma due to COVID-19 pandemic. [Ricard]</p>	<p>In Chapter 3 under the Participants subheading, I acknowledged data collection was performed during the COVID-19 pandemic and referenced the increased risk of traumatic experience.</p>
<p>8) Provide details about expert input and how feedback was used for items. [Sanders]</p>	<p>I provided details about expert feedback and commentary under the subheading <i>Quantitative and Qualitative Review of the Initial Item Pool</i>.</p>
<p>9) Explain how existing measures were used and adapted for creating BTRS items. [Sanders]</p>	<p>As part of <i>Step 1: Create an Item Pool</i> details were provided about how existing measures influenced the literature review process and item creation.</p>
<p>10) In limitations section describe the usefulness of surveying understudied populations and those who are coping with an ongoing pandemic. [Sanders]</p>	<p>I described usefulness and confines of surveying an understudied population during a pandemic to the limitations section in Chapter 3.</p>
<p>11) Provide trauma statistics about Texas and Corpus Christi. [Sanders]</p>	<p>Added section about trauma statistics and mental health in Chapter 1 named “Texas Statistics Related to Trauma and Mental</p>

	Health.” There were no statistics available about the prevalence of trauma in Corpus Christi.
12) Consider adding a question about a person’s level of spirituality to assess for relevance to coping with trauma.  [Sanders]	Added self-rated spirituality item to the demographic questionnaire.
13) Identify the use of a homogenous sample as part of limitations [Smith].	Identified sample as homogeneous within the limitations section of Chapter 3.
14) Describe how you will adjust for incomplete data.	Provided details about removing outliers and using the SPSS mean series technique to replace missing values on measures. This can be found within the preliminary analysis section located in Chapter 3.

## Development and Initial Validation of the Brief Trauma Resiliency Scale

## Abstract

The article outlines the development and validation of the Brief Trauma Resiliency Scale. A review of the literature supports the need for an empirically supported scale that measures resilience to traumatic experiences. Exploratory factor analysis was applied to developmental items to investigate usefulness of measuring the targeted construct. Implications are discussed, limitations are acknowledged, and recommendations are provided to further investigate the psychometric properties within this scale.

## Development and Initial Validation of the Brief Trauma Resiliency Scale

At this moment, the world is experiencing a unique and challenging time with the ongoing COVID-19 pandemic. Many are tasked with the responsibility to adapt to ongoing changes and all are at-risk for life threatening circumstances. In response to the worldwide pandemic, it is of the utmost importance for people to demonstrate resilience. In addition to the COVID-19 threat, many experience other traumatic events and some struggle to cope with and adapt to these circumstances. Traumatic experiences come in many forms including witnessing the death of loved ones, domestic violence, various forms of abuse, natural disasters, car accidents, and many more (Bender et al., 2014). Traumatic experiences (trauma) are defined as witnessing or directly experiencing a deeply distressing or disturbing event that threatens physical, emotional, or psychological well-being.

In all, traumatic events are commonly experienced across the world, with over 70% of adults experiencing at least one traumatic event within their lifetime (Benjet et al., 2016). In the United States, it is estimated that 89.7% of Americans experienced a traumatic event within their lifetime and 8.3% of adults met diagnostic criteria for post-traumatic stress disorder (PTSD) (Kilpatrick et al., 2013). In Texas, there are 144,000 trauma related injuries each year and over 3,000 trauma related fatalities (TETAf, 2014). Following traumatic events some people experience mental illness, including but not limited to PTSD, anxiety related disorders, and depression. Nationwide statistics estimate 43.8 million people experience mental illness per year, with anxiety (18.1%) and depression (16.9%) being the most common (National Alliance of Mental Illness [NAMI], 2019). In light of these statistics, it is important to recognize what contributes to resilience and one's ability to bounce back from trauma. This is best understood by reflecting on the history of the resilience construct and trauma literature.

## **Resilience Defined and Constructs History**

The resilience construct was defined in various ways including the ability to adapt to situational circumstances, overcome adversity, growth despite high risk status, maintain competence under stress, overcome trauma, resist to psychosocial risk experiences, and to bounce back or recover from stress (Hunter, 1999; Luthar, 2006; Rutter, 1999; Smith et al., 2008; Werner, 1995). The current study defined trauma resiliency as one's ability to bounce back after a traumatic experience.

Research on resilience dates back several decades with pioneers addressing the features and forms of the construct and providing various definitions. Resilience was once labeled as an inherent individual characteristic but others identified it as influenced by external factors (Anthony, 1974; Garmezy et al., 1984; Rutter 1979; Werner & Smith, 1982). This inclusion shifted the perspective of resilience understood as a trait to a state and/or process. Others studied protective factors of resilience on an individual, family, and community level (Garmezy et al., 1984; Rutter 1979). Furthermore, resilience was described as dimensional and ever changing (Luthar, 2006; Rutter, 1999). Researchers developed scales to measure resilience with varying degrees of success. However, few measures were created to directly assess resilience to trauma.

## **Protective Features of Traumatic Experiences**

A review of trauma literature showed numerous themes related to one's ability to bounce back from adversity and traumatic experiences. Common themes of trauma survivors included variables related to social connectedness, cognitions, personal factors, and healthy behavior habits. A review of literature supported trauma resiliency described as a multi-layered construct connecting various protective features to support one's ability to bounce back from traumatic experiences.

Smith et al. (2017) connected social support and self-efficacy as being crucial to bouncing back from experiences of mass violence, but in the absence of social supports, adjustment was less promising. Lee (2019) discovered firefighters with active support systems, increased ability to self-regulate, and who refrained from rumination on traumatic experiences were more resilient. Ginesini (2018) found survivors of trafficking, sexual exploitation, and torture were more resilient when various social supports were available. Further, spirituality and positive evaluation of trauma was associated with increased resilience. Similar findings of positive evaluation of trauma, social support, and self-efficacy also contributed to Holocaust survivor's ability to adapt (Reches & Sondaite, 2017). Other protective factors of Holocaust survivors included integration of experience, self-reliance, and acceptance of circumstances. Other researchers found incoherent self-concept, coping skills, emotional intelligence, and self-awareness to contribute to positive adaption in a sample of adults (Armstrong et al., 2011; Diehl & Hay, 2010). Mak et al. (2011) found positive views (self, world, future) mediated depressive symptoms and contributed to increase quality of life. Brookmeyer et al. (2015) found witnesses to traumatic experiences were more resilient when they had prosocial cognitions and an increased sense of social support.

Together studies reflect resilience as an intricate process influenced by various variables all serving to help bounce back from negative events and circumstances. For purposes of this study, findings were used to develop items for the measure under evaluation.

### **Resilience Measures Applied to Trauma Samples**

Researchers assessing resilience among trauma samples demonstrated some success using the Connor-Davidson Resilience Scale (CD-RISC), Scale of Protective Factors (SPF-24), and Trauma Resilience Scale (TRS). Of the three scales, only the TRS was developed based on

the intention of measuring resilience to traumatic experiences. Each scale approached the construct of resilience in a unique manner.

The CD-RISC scale measured general resilience through the contribution of five distinct factors. CD-RISC was applied to various trauma samples and showed conflicting results. Study findings reported breast cancer survivors scored higher in resilience but childhood trauma survivors scored lower in resilience when compared to a general sample (Roy et al., 2011; Scali et al., 2011). The SPF-24 was developed to measure general resilience and showed encouraging findings when attempting to detect individuals who experienced violent trauma (Ponce-Garcia et al., 2015). Trauma survivors were detected through a SPF-24 subscale but only demonstrated applicability to a subsample of trauma survivors. The TRS was developed to assess the ability to positively adapt following violent traumatic experiences. Results from the developmental study revealed weak convergent construct validity with several subscales.

Research efforts are encouraging but still fall short of providing an empirically sound instrument to measure trauma resiliency. With few researchers attempting to measure this dimension of resilience, a new approach is needed. An integrative approach using protective factors, theoretical foundational elements, and review of existing resilience scales could improve the ability to assess trauma resiliency.

### **The Current Study**

The researcher developed the Brief Trauma Resiliency Scale (BTRS) to undergo statistical evaluation assessing trauma resiliency as one's ability to bounce back from traumatic experiences. The strategy was used to create items based on reviewing literature about protective features to trauma, researching literature about resilience, by pulling concepts from relational cultural theory and cognitive behavioral theory, and through reviewing other resilience scales.

This comprehensive approach could offer a way to conceptualize how trauma resiliency is developed and maintained. For this study, traumatic experiences are defined as witnessing or directly experiencing a deeply distressing or disturbing event that threatens physical, emotional, or psychological well-being.

The aim of the study was to develop and validate the BTRS. There were four main objectives: (1) to develop the BTRS by evaluating content-oriented evidence, (2) to assess the internal structure of the BTRS, (3) to evaluate the relationships of the BTRS with scores from measures similar to the construct of interest, and (4) to evaluate the internal consistency reliability of BTRS scores. The hypothesis was trauma resiliency would be reflected by personal protective factors and social connectedness. Further, BTRS items were expected to positively correlate with hope, achievement motivation, resilience, and spirituality. A negative correlation was expected between the BTRS and anxiety. The following research questions were explored:

1. What variables are representative of the trauma resiliency construct among adults?
2. What is the factor structure of the BTRS?
3. What is the internal consistency reliability of the BTRS?
4. To what degree is there a relationship between scores on the BTRS and other scales measuring similar constructs?

### **Participants**

Permission was granted by the Institutional Review Board at the university to carry out the study. Prospective participants were recruited from two universities and one community college located in South Texas. The researcher emailed professors from each institution to receive permission to recruit students for participation in the study. Professors who agreed were provided a Qualtrics link to distribute to students. Each student completed the demographic

form, Brief Trauma Resiliency Scale, Adult Dispositional Hope Scale, Generalized Anxiety Disorder-7, Achievement Motivation Measure, and Brief Resilience Scale. Participation was voluntary and no incentives were provided by the researcher. To participate in the study, prospective participants were enrolled in college, 18 years or older, capable of providing consent, and fluent in English.

The survey link was distributed to about 1300 students. Altogether, 295 students began the survey, but 12 surveys were not submitted. One survey was incomplete and another survey was identified as an outlier on two measures. The participant response rate was 21% and included 281 surveys which underwent further analyses (166 undergraduate and 114 graduate students). Demographic data for one participant was missing and a few others excluded answering some questions. Participants were categorized into five age groups including 18-23 (55.5%), 24-30 (23.9%), 31-40 (12.1%), 41-50 (4.6%), and 50 or older (3.6%). The majority of participants were Hispanic or Latino (47.9%), followed by White (36.1%), Bi-racial/other (7.9%), African American (3.9%), Asian American (3.2%), and Native American or Pacific Islander (1%). More female (n=203, 73%) than male (n=75, 27%) students participated.

## **Measures**

*Demographic Questionnaire.* This is used to gather information about participants age, gender, marital status, ethnicity, highest academic level of achievement, and current degree seeking. One item asks participants to rate their level of spirituality as it pertains to coping with life events. There are two “yes” or “no” questions inquiring about directly experiencing or witnessing a traumatic event.

*Brief Trauma Resiliency Scale.* BTRS consists of 28 items created to measure resilience to traumatic experiences. Of the 28 items, one item is reverse scored. Respondents answer each

item on a 5-point Likert-type scale with the following options: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree. Scores ranged from 28 to 140. Higher scores represented higher resilience to traumatic experiences.

*Adult Dispositional Hope Scale (ADHS; Snyder et al., 1991).* The ADHS is a self-report questionnaire that measures an individual's overall sense of hope. There are two subscales including agency and pathway. ADHS contains 12-items answered on an 8-point Likert type response format with values ranging from 1 (definitely false) to 8 (definitely true). Higher scores on the ADHS represent higher level of hope. The agency subscale is evaluated using four-items that includes items such as, "I energetically pursue my goals" and "My past experiences have prepared me well for my future." The pathway subscale is evaluated using four-items that includes items such as, "I can think of many ways to get out of a jam" and "There are lots of ways around any problem." Cronbach's alpha coefficients for the overall ADHS (.74 to .84), agency subscale (.71 to .76), and pathways subscale (.63 to .80) were sufficient when administered to college students and adults receiving psychological treatment (Snyder et al., 1991). Robust internal consistency was found through a confirmatory study using a sample of adults from 18 to 65, with observed alpha coefficients on the agency subscale ( $\alpha = .84$ ), pathway subscale ( $\alpha = .79$ ), and total hope ( $\alpha = .87$ ) (Gomez et al., 2015).

*Generalized Anxiety Disorder-7 (GAD-7; Spitzer, Kroenke, Williams & Lowe, 2006).* GAD-7 is a self-report questionnaire designed to assess the presence and severity of anxiety. The GAD-7 is reported to be a strong indicator for anxiety related disorders. This measure consists of seven items rated on a 4-point Likert-type response format with values ranging from 0 (Not at all) to 3 (Nearly every day). Higher scores indicate higher levels of anxiety. The GAD-7 scale includes items such as, "Not being able to stop or control worrying" and "Trouble relaxing." In

a study of Spanish and English-speaking Americans, GAD-7 reproduced high Cronbach's alpha coefficients ranging from .94 to .95 (Mills et al., 2014). Internal consistency reliability was strong for the English sample ( $\alpha = 0.91$ ), Spanish sample ( $\alpha = 0.94$ ), and total sample ( $\alpha = 0.93$ ).

*Achievement Motivation Measure* (AMM; Smith & Karaman, 2019). The AMM is a self-report questionnaire that estimates achievement motivation through two factors including Achievement Thoughts and Achievement Behaviors. This measure includes 13 items rated on a 5-point Likert-type response format with values ranging from 1 (never) to 5 (always). Higher scores on the AMM represent higher levels of achievement motivation. The Achievement Thoughts subscale includes items such as, "While working on a task, I think of how it will feel when the task is successfully completed" and "I prefer to know how I am progressing by obtaining concrete feedback when working at a task." Sample items of the Achievement Behavior subscale includes items such as, "In most projects I would rather take personal responsibility for completion than be only a contributor" and "I like to undertake projects that involve some risk." The AMM produced high Cronbach's alpha coefficients ranging from .82 to .84. Reliability estimates evaluated using Cronbach's alpha coefficients demonstrated to be acceptable for the Achievement Thoughts subscale (.77 to .80) and the Achievement Behaviors subscale (.60).

*Brief Resilience Scale* (BRS; Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008). This scale is developed to assess the ability to bounce back from stress and adversity. The BRS is a self-report measure with 3 positively worded items and 3 negatively worded items. Items are rated on a 5-point Likert-type response format with values ranging from strongly disagree to strongly agree. BRS scores are interpreted by referencing the average score of all items together. Higher scores reflect higher resilience. Positively worded items include items

such as, “I tend to bounce back quickly after hard times” and “It does not take me long to recover from a stressful event.” Negatively word items include items such as, “I have a hard time making it through stressful events” and “It is hard for me to snap back when something bad happens.” Smith et al. (2008) reported Cronbach’s alpha coefficients for scores on the BRS ranged from .80 - .91, indicating satisfactory reliability of the items.

## **Procedure**

**Evidence Based on BTRS Content.** BTRS items went through a two-step process to evaluate the content, and the construct I intended to measure. First, an integrative approach using protective factors, theoretical foundational elements, and review of existing resilience scales were used to create items. Second, experts with clinical experience in working with trauma survivors provided qualitative and quantitative feedback of the item pool. The Lawshe (1975) technique was used to quantify feedback using the content validity ratio (CVR) formula,  $CVR = (N_e - N/2) / (N/2)$ .  $N_e$  represented the number of panelist rating items as “essential” and  $N$  indicated the total number of panelists. Score computations produced score values ranging from -1 to 1, with scores close to positive 1 indicating high scores. All five PE’s needed to unanimously agree that an item was essential for inclusion. Qualitative feedback was considered based on expert commentary.

**Estimating Adequate Sample Size.** The researcher considered various guidelines to estimate the sample size needed for exploratory factor analysis. A large survey evaluating observation to item ratio of 1076 peer reviewed journal articles found 40.5% used a 5:1 ratio or less and 63.2% used a 10:1 ratio or less (Costello & Osborne, 2005). Based on findings, the researcher applied the 10:1 observation rule and identified the minimum sample size needed for EFA to be 280 participants (Costello & Osborne, 2005; Everitt, 1975).

## Data Analyses Procedures

*Preliminary Analysis.* Before performing EFA, I searched for missing values, identified outliers, and assessed for normality. This was evaluated using descriptive statistics, skewness, Shapiro Wilk's test, stem-and-leaf plots, and box plots.

Descriptive statistics were used to identify missing data. Results revealed less than one percent of values were missing from the BTRS, ADHS, GAD-7, AMM, and BRS. In consideration, missing values were replaced using the series mean function in SPSS. Normality was assessed using skewness and the Shapiro Wilk test. Skewness was evaluated to be acceptable for values within the absolute value of 1 (Field, 2013). Shapiro Wilk's test were deemed acceptable if  $p$  values were greater than .05 (Field, 2013). Stem-and-leaf plots and box plots were inspected for outliers. The Shapiro-Wilks tests generated statistically significant results for all measures except the AMM, indicating a violation of the normality assumption. However, evaluation of skewness revealed all measures were within normal limits. No changes were made to the dataset because this finding was expected due to use of a non-clinical sample. One participants' survey included outliers on two measures and the survey was removed from further analyses.

Next, the intercorrelation matrix, Kaiser-Meyer-Olkin (KMO) test, and Bartlett's Test of Sphericity were examined to assess for factorability of data. The intercorrelation matrix was screened for values between .20 and .80 which are necessary for factor analysis (Field, 2013). Next, KMO test was interpreted to determine sampling adequacy. Kaiser (1974) provided the following guidelines to interpret KMO values: .90 - 1.0 (marvelous), .80 - .89 (meritorious), .70 - .79 (middling), .60 - .69 (mediocre), .50 - .59 (miserable), and below .50 (unacceptable).

Bartlett's Test of Sphericity was used to evaluate if the intercorrelation matrix is an identity matrix. Data is considered appropriate for  $p$  values below .05 (Watson, 2017).

***Exploratory factor Analysis.*** Principal axis factoring with Promax rotation was used to identify latent factors underlying variables which is useful when communalities are high or low (Kahn, 2006). The following procedures were used to make decisions about factor retention: (1) retain factors with eigenvalues greater than one (Kaiser, 1960), (2) examine the scree test and retain values above one and/or to the left of the elbow (Cattell & Jaspars, 1967), and (3) retain factors with higher eigenvalues in comparison to a random set of eigenvalues (Dimitrov, 2012).

To improve the structure of the BTRS, the following criteria was used to retain or remove items: (a) communality values between .40 and 1.0 were retained (Pett et al., 2003), (b) delete variables with loadings less than .32 (Tabachnick & Fidell, 2013), and (c) factors must load three or more variables to be retained (Pett et al., 2003). For criteria b, if variables load on two or more factors, the variable was retained on the highest loading, if there is at least .10 difference from the next highest loading (Tabachnick & Fidell, 2013). If the minimum difference was not met, the item was deleted. Factors were named based on what the collective group of items assessed.

**Estimating Evidence Based on Relations to Other Variables.** Correlations were examined to assess the relationship of the BTRS and other variables. Bivariate correlations were assessed using Pearson's product moment correlation. Relationships were interpreted based on the direction (positive or negative) and strength of the relationship interpreted as .1 (small), .3 (medium), and .5 (large) (Sink & Stroh, 2006).

**Establishing Internal Consistency Reliability.** Internal consistency reliability was evaluated using Cronbach alpha which is recommended when item responses are multi-scored (Bardhoshi & Erford, 2017). Erford (2013) identified reliability coefficients above .80 as

acceptable for screening instruments. Therefore, this standard was used to interpret the coefficient alpha computed for the BTRS and all factors.

## **Results**

### **Evidence Based on BTRS Content**

Five experts with clinical experience in working with trauma survivors rated preliminary items to provide content-oriented evidence. Of the 56 items rated by experts, 28 items met the CVR criteria for inclusion and three items fell just short of the threshold. The researcher reviewed expert commentary to aid in the decision-making process of retaining the three items that fell short of the CVR criteria. After reviewing commentary, only 28 items were retained for further analysis.

### **Evidence Based on the Internal Structure of the BTRS**

#### *Exploratory factor Analysis.*

The intercorrelation matrix, KMO test, and Bartlett's Test of Sphericity were evaluated to determine factorability of items. Communalities were assessed using the intercorrelation matrix and four items were removed that did not meet the .40 threshold (Pett et al., 2003). The KMO test produced a value of .921, indicating marvelous sampling adequacy (Kaiser, 1974). Bartlett's Test of Sphericity generated a  $p$  value below .05, indicative of appropriate correlations between items. Results revealed 24 of 28 items were suitable for EFA.

Next, principal axis factoring with Promax rotation was used to extract the factor structure. Using the Kaiser Greater-Than-One rule criterion, three factors emerged. Factor 1 explained 35.90% of the variance with an eigenvalue of 10.05, Factor 2 explained 8.41% of the variance with an eigenvalue of 2.35, and Factor 3 explained 3.82% of the variance with an eigenvalue of 1.07. The scree test replicated findings with three factors retained as indicated by

values above 1 and accounted for until values significantly tapered off. Parallel analysis revealed 6 factors exceeded eigenvalues of a random data set. In consideration of all extraction criteria, only 3 factors were retained.

To improve the structure of the BTRS, I assigned items to factors by assessing communalities, removing variables with loadings less than .32, and by retaining factors with 3 or more variables. Four items were removed for not meeting the communalities threshold. The pattern matrix was referenced to assess factor loadings and number of factors to be retained. Factor 1 retained seven items, Factor 2 retained four items, and Factor 3 retained three items. Items were examined for cross loadings and there were no issues. The procedure resulted in a finalized version of the BTRS including 14 items.

### **Evidence Based on Relations to Other Variables**

Bivariate correlation analyses revealed significant associations between scores on the BTRS and scores on the ADHS, BRS, AMM, GAD-7, and spirituality item. Bivariate correlation analysis yielded a significant positive relationship between BTRS and ADHS,  $r = .65, p < .01$ , suggesting a large effect size. The correlation analysis yielded a significant positive relationship between BTRS and BRS,  $r = .63, p < .01$ , suggesting a large effect size. A significant positive relationship was found between BTRS and AMM,  $r = .53, p < .01$ , suggesting a large effect size. The BTRS was positively correlated with spirituality,  $r = .24, p < .01$ , suggesting a small effect size. Bivariate correlation analysis yielded a significant negative relationship between BTRS and GAD-7,  $r = -.36, p < .01$ , suggesting a medium effect size. Significant correlations between the BTRS and other variables established construct validity evidence.

### **Establishing Internal Consistency Reliability**

The internal consistency ( $\alpha$ ) of the 14-item BTRS scale was .901, with the 95% confidence interval to .883 and .917. Factor 1 subscale included seven items generating a Cronbach's alpha coefficient of .892, with the 95% confidence interval to .872 and .910. Internal consistency for the four item Factor 2 subscale produced a Cronbach's alpha coefficient of .864, with the 95% confidence interval to .836 and .888. The internal consistency of the three item Factor 3 subscale was .799, with the 95% confidence interval to .755 and .837. All internal consistency reliability estimates for the BTRS and subscales were within the acceptable range for screening instruments (Erford, 2013).

### **Discussion**

The purpose of this study was to develop and validate an instrument to measure trauma resiliency. This was accomplished by establishing content-oriented evidence, assessing the internal structure of the BTRS using EFA, evaluating internal consistency reliability, and examining evidence based on relation to other constructs. Results of the study exhibited promising evidence for the BTRS to measure trauma resiliency.

Data was collected via Qualtrics by recruiting a college sample from South Texas. After reviewing data, two surveys were removed due to one being incomplete and another being identified as an outlier on two measures. A sample of 281 surveys underwent EFA utilizing principle axis factoring and Promax rotation. Results of EFA yielded a three-factor instrument composed of 14 items and accounting for 48.14% variance in scores. Finding under 50% extracted variance is acceptable due to the complexity of social sciences and the ideal purpose of providing a simplified explanation of the common factors contributing to the construct being studied (Hair, 2010). Factor 1 consisted of seven items, Factor 2 contained four items, and Factor 3 included three items. Internal consistency reliability estimates for the BTRS ( $\alpha = .901$ ), Factor 1

( $\alpha = .892$ ), Factor 2 ( $\alpha = .864$ ), and Factor 3 ( $\alpha = .799$ ) demonstrated favorable psychometric properties.

Based on results of factor analysis, the BTRS is composed of three factors including self-concept (seven items), perceived support system (four items), and adaptation (three items). The Self-Concept subscale items are reflective of a positive outlook and self-belief despite being challenged or experiencing setbacks. Perceived Support System subscale items are related to one's sense of support when under distress. Adaption subscale items inquired about one's ability to manage stress and remain focused despite adversity.

Scores on the BTRS do not have cut scores and should be interpreted by using the total score and clinical judgement. Finlay and Sampogna (2018) recommend clinicians use instrument scores to guide clinical decisions by using their wider range of knowledge and critical thinking to decide what is best for the client. Therefore, high scores on the BTRS are typically reflective of high resilience. However, a more accurate evaluation of trauma resiliency would be indicated by high scores on each subscale. Trauma resiliency is viewed as an intricate construct connecting various protective features, and serving as an active process of demonstrating resilience. In perspective of the BTRS structure, trauma resiliency is demonstrated when a person maintains a stable positive self-concept, trusts their support system, and is able to adapt through active coping and maintained focus despite experiences of trauma. This reflection is key because empirical evidence demonstrates resilience as being influenced by several factors with various mediating effects (Mak, Ng, & Wong, 2011; Smith, Felix, Benight, & Jones, 2017). Consequently, the absence of one key factor could significantly depreciate one's ability to bounce back from traumatic experiences. With this in mind, clinicians could measure trauma resiliency using the BTRS and referencing subscales to support clinical decisions.

Bivariate correlation analyses endorsed sound construct validity evidence for the BTRS. The BTRS demonstrated strong positive correlations with hope as measured by the ADHS ( $r = .65, p < .01$ ), general resilience as measured by the BRS ( $r = .63, p < .01$ ), and achievement motivation as measured by the AMM ( $r = .53, p < .01$ ). The large correlations indicated these scales measured related constructs. A small positive correlation was found between the BTRS and spirituality ( $r = .24, p < .01$ ). Findings indicate a significant but weak correlation of the BTRS and spirituality. A significant negative relationship was revealed between the BTRS and GAD-7 ( $r = -.36, p < .01$ ), suggesting a medium effect size. Results show an inverse relationship between trauma resiliency and anxiety.

Statistical analyses were used to investigate if age, gender, marital status, ethnicity, and education influenced trauma resiliency. The researcher hypothesized trauma resiliency would not be influenced by identified variables. Rather, literature showed personal characteristics and social supports to be linked to resilience (Armstrong et al., 2011; Diehl & Hay, 2010). Non-significant findings were found for gender ( $p = .49$ ) and marital status ( $p = .07$ ). Results infer an individual's gender and marital status do not influence trauma resiliency scores. Significant findings were found for age ( $p = .047$ ), ethnicity ( $p = .047$ ), and education ( $p = .00$ ). Findings propose increased age and higher education attainment might influence trauma resiliency scores. However, age classification data confirms large differences in the 18-23 ( $n = 156$ ) versus 41-50 ( $n = 13$ ) age group options. Further, education attainment data shows large differences in the Some college ( $n = 118$ ) versus Master's degree ( $n = 36$ ) categories. The large discrepancies in participants per category restrict conclusive evidence for significant differences. Trauma resiliency scores were significantly higher for Asian American ( $n = 9$ ) in comparison to Bi-racial

(n = 22) students, but due to small sample sizes for each category differences were not conclusive.

### **Implications for Counselors and Counselor Educators**

The current study contributed to the understanding of trauma resiliency and the relationships to achievement motivation, hope, resilience, spirituality, and anxiety. With over 70% of adults who experienced a traumatic event, it is crucial to articulate what contributes to this form of resilience (Benjet et al., 2016). This new approach offers an opportunity to explore dimensions of resilience providing knowledge about contributing factors to each form.

The BTRS benefits the counseling profession by providing a method of assessing one's preparedness to bounce back from trauma, by serving as a teaching tool for counselors-in-training, and allows for leaders to use this knowledge to create programs designed to educate others about trauma resiliency. The measure is best utilized in settings where college students receive therapeutic services such as university counseling centers. The instrument was designed to be self-administered with scores interpreted by clinicians. Clients should complete the BTRS in a comfortable environment to increase the accuracy of scores. Clinicians interpret high scores as increased preparedness to bounce back from trauma. Low scores suggest the person is unprepared or would have difficulty bouncing back after a traumatic experience. High trauma resiliency is best indicated by a high total score and consistently high scores for each subscale. This is because resilience literature showed protective features work together when adapting to trauma, but the absence of one domain recovery was less promising (Smith, Felix, Benight, & Jones, 2017). Further, clinicians use field knowledge, BTRS scores, and client information to support interpretation of scores, clinical decision making, case conceptualization, treatment planning, and recommendation of resources (Finlay & Sampogna, 2018).

Clinicians could use the BTRS for at-risk populations, when they speculate or know a client experienced trauma, and gauge changes in trauma resiliency following treatment. When administered to clients in speculation of or after learning about traumatic experiences and for at-risk populations, clinicians use the scale scores to gauge preparedness to bounce back. Clients who score high should be educated about what scores mean and reinforced to continue the use of beneficial factors. For low scoring clients, clinicians should empower clients through education about trauma resiliency (Lubin, Loris, Burt, & Johnson, 1998). Following client education, clinicians could offer homework to facilitate client's proactive efforts at increasing trauma resiliency. Further, clinicians could influence trauma resiliency by using subscale scores to identify weak areas and direct therapeutic interventions to increase deficiencies. Next, the BTRS could be used to gauge treatment response by assessing changes in trauma resiliency from pre-treatment to post-treatment. This method serves as an indicator of treatment effectiveness and offers clinicians an opportunity to make changes as necessary.

Counselor educators could use findings to prepare counselors-in-training to work with trauma survivors. Professors could integrate study findings by facilitating classroom discussions, developing assignments intended to integrate knowledge into clinical practice, and by teaching students how to use the BTRS. Classroom discussions and assignments could be designed to challenge students to integrate their personal knowledge, client information, and BTRS scores into a coherent treatment plan facilitating critical thinking. Further, students would learn about providing clients a comfortable environment to complete the self-administered BTRS and learn how to interpret scores as previously mentioned. Further, counselor educators could collaborate with other educators or research administrative staff to advance our knowledge of trauma resiliency by engaging in research efforts. School administration staff could collaborate to create

programs within schools to support students impacted by traumatic experiences. This could take place in the form of workshops, support groups, and in-school systems designed to provide resources for at-risk students.

### **Limitations and Recommendations**

The current study achieved success by developing an instrument designed to measure trauma resiliency. However, more research is needed to validate this measure and there are some limitations of the current study. Limitations included the generalizability of findings, use of a self-report questionnaire, and data collection taking place during a pandemic.

Generalizability limitations included the use of a convenience sampling method, inclusion of only college students, and the geographical location of where the study took place. The use of convenience sampling reduces ability to engage in inductive reasoning and increases error due to outliers (Etikan, Musa, & Alkassim, 2016). The current study found one survey to be an outlier on two measures and was removed to improve statistical evaluation. Further, the geographical location of data collection revealed a high sample of Hispanic/Latino's (47.9%), which is not representative of the national population. Also, the inclusion criteria of being current college students limits the generalizability of findings to the general population (Hanel & Vione, 2016).

Another limitation was the use of a self-report questionnaire and possible characteristic differences of those who are willing versus unwilling to participate in the study. When using a self-report questionnaire, data could be flawed by social desirability and response biases (Furnham, 1986). The researcher was left to assume individual's responded to instrument items honestly.

Furthermore, the COVID-19 pandemic offered another obstacle due to the possibility of elevated scores on measures. Participants who were significantly impacted by the crisis might have responded differently from normal circumstances. However, it is possible that responses during a pandemic are similar to responses to traumatic experiences and might offer more credibility to the study results.

Lastly, the researcher mistakenly combined Native American and Pacific Islander categories as one response option when data collection took place. The United States Census Bureau (2020) offers each race as separate choices with Native Americans classified as original people from North or South America and Pacific Islanders as originating from islands, such as Hawaii and Guam. Researchers could avoid misclassification by matching the United States Census Bureau options. However, this category only received three responses and unlikely influenced results.

It is recommended for the study to be replicated to confirm findings and advance the applicability of the current scale to other populations. Significant but non-conclusive differences were found for trauma resiliency scores related to age, ethnicity, and education. The current study showed small and unequal sample sizes for categories of age, ethnicity, and education variables. Future studies should inquire about influences related to each variable on trauma resiliency by reassessing relationships using an evenly distributed sample. Field (2013) mentions small and unequal samples sizes are problematic due to increased chance of error when making comparisons. Also, a subsequent study using confirmatory factor analysis is recommended to verify the factorial structure of the BTRS. Transparency of the study design was provided to offer opportunities for other researchers to replicate findings and advance the applicability of the BTRS to other populations.

## **Conclusions**

This study provides preliminary evidence for a new scale designed to measure trauma resiliency. The Brief Trauma Resiliency Scale (BTRS) utilized a sample of college students from South Texas whom completed a survey via Qualtrics. Results of the study verified the BTRS as a psychometrically sound instrument capable of assessing resilience to trauma by using a college sample. Findings are noteworthy because it provided counselor educators and practitioners a tool for assessing and educating clients/students about the construct trauma resiliency. Future research is recommended to verify the structure of the BTRS, applicability to other populations, and relationship of trauma resiliency to other constructs.

## References

- Anthony, E. J., & Koupernik, C. (Eds.). (1974). *The child in his family: Children at psychiatric risk*. John Wiley & Sons.
- Armstrong, A. R., Galligan, R. F., & Critchley, C. R. (2011). Emotional intelligence and psychological resilience to negative life events. *Personality & Individual Differences*, *51*(3), 331–336. <https://doi.org/10.1016/j.paid.2011.03.025>
- Bardhoshi, G., & Erford, B. T. (2017). Processes and procedures for estimating score reliability and precision. *Measurement and Evaluation in Counseling and Development*, *50*(4), 256–263. <https://doi.org/10.1177/0044118x17721803>
- Bender, K. A., Thompson, S. J., Ferguson, K. M., Yoder, J. R., & Kern, L. (2014). Trauma among street-involved youth. *Journal of Emotional Behavioral Disorders*, *22*, 53–64. <https://doi.org/10.1177/1063426613476093>
- Benjet, C., Bromet, E., Karam, E. G., Kessler, R. C., McLaughlin, K. A., Ruscio, A. M., & Lepine, J. P. (2016). The epidemiology of traumatic event exposure worldwide: Results from the World Mental Health Survey Consortium. *Psychological Medicine*, *46*(2), 327–343. <https://doi.org/10.1017/S0033291715001981>
- Brookmeyer, K. A., Henrich, C. C., & Schwab-Stone, M. (2005). Adolescents who witness community violence: Can parent support and prosocial cognitions protect them from committing violence? *Child Development*, *76*(4), 917–929. <https://doi.org/10.1111/j.1467-8624.2005.00886.x>
- Cattell, R. B., & Jaspars, J. (1967). A general plasmode (No. 30-10-5-2) for factor analytic exercises and research. *Multivariate Behavioral Research Monographs*, *67*(3), 211.

- Connor K. M., & Davidson R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression & Anxiety, 18*(2), 76–82.  
<https://doi.org/10.1002/da.10113>
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*(7), 1–9. <https://doi.org/10.7275/jyj1-4868>
- Diehl, M., & Hay, E. L. (2010). Risk and resilience factors in coping with daily stress in adulthood: The role of age, self-concept incoherence, and personal control. *Developmental Psychology, 46*(5), 1132–1146. <https://doi.org/10.1037/a0019937>.
- Dimitrov, D. M. (2012). *Statistical methods for validation of assessment scale date in counseling and related fields*. American Counseling Association.
- Erford, B. T. (2013). *Assessment for counselors* (2nd ed.). Cengage Wadsworth.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4.  
<https://doi.org/10.11648/j.ajtas.20160501.11>
- Everitt, B. S. (1975). Multivariate analysis: The need for data, and other problems. *British Journal of Psychiatry, 126*, 257–240. <https://doi.org/10.1192/bjp.126.3.237>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). London: Sage.
- Finlay, A. Y., & Sampogna, F. (2018). What do scores mean? Informed interpretation and clinical judgement are needed. *British Journal of Dermatology, 179*(5), 1021–1022.  
<https://doi.org/10.1111/bjd.17028>
- Furnham, A. (1986). Response bias, social desirability and dissimulation. *Personality and Individual Differences, 7*(3), 385–400. [https://doi.org/10.1016/0191-8869\(86\)90014-0](https://doi.org/10.1016/0191-8869(86)90014-0)

- Garnezy, N., Masten, A.S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, 55(1), 97–111. <https://doi.org/10.2307/1129837>
- Ginesini, G. (2018). Forced migration: trauma, faith, and resilience. *Social Work & Society*, 45(4), 98–121.
- Gomez, R., McLaren, S., Sharp, M., Smith, C., Hearn, K., & Turner, L. (2015). Evaluation of the bifactor structure of the dispositional hope scale. *Journal of Personality Assessment*, 97(2), 1–9. <https://doi.org/10.1080/00223891.2014.938158>
- Hair, J. F. (2010). *Multivariate data analysis: A global perspective* (7<sup>th</sup> ed.). Pearson Education.
- Hanel, P. H., & Vione, K. C. (2016). Do student samples provide an accurate estimate of the general public? *PloS One*, 11(12), e0168354. <https://doi.org/10.1371/journal.pone.0168354>
- Hunter, A. J., & Chandler, G.E. (1999). Adolescent resilience. *The Journal of Nursing Scholarship*, 31(3), 243–247. <https://doi.org/10.1111/j.1547-5069.1999.tb00488.x>
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141–151. <https://doi.org/10.1177/001316446002000116>
- Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 Criteria. *Journal of Traumatic Stress*, 26(5), 537–547. <https://doi.org/10.1002/jts.21848>
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28, 563–575. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>

- Lee, J. S. (2019). Perceived social support functions as a resilience in buffering the impact of trauma exposure on PTSD symptoms via intrusive rumination and entrapment in firefighters. *PLoS One*, *14*(8), 1–14. <https://doi.org/10.1371/journal.pone.0220454>
- Lubin, H., Loris, M., Burt, J., & Johnson, D. R. (1998). Efficacy of psychoeducational group therapy in reducing symptoms of posttraumatic stress disorder among multiply traumatized women. *American Journal of Psychiatry*, *155*(9), 1172–1177. <https://doi.org/10.1176/ajp.155.9.1172>
- Luthar, S. S. (2006). Resilience in development: A synthesis of research across five decades. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (p. 739–795). John Wiley & Sons Inc.
- Madsen, M. D., & Abell, N. (2010). Trauma Resilience Scale: Validation of protective factors associated with adaptation following violence. *Research on Social Work Practice*, *20*(2), 223–233. <https://doi.org/10.1177/1049731509347853>
- Mak, W. W., Ng, I. S., & Wong, C. C. (2011). Resilience: Enhancing well-being through the positive cognitive triad. *Journal of Counseling Psychology*, *58*(4), 610–617. <https://doi.org/10.1037/a0025195>
- Mills, S. D., Fox, R. S., Malcarne, V. L., Roesch, S. C., Champagne, B. R., & Sadler, G. R. (2014). The psychometric properties of the Generalized Anxiety Disorder-7 Scale in Hispanic Americans with English or Spanish language preference. *Cultural Diversity and Ethnic Minority Psychology*, *20*(3), 463–468. <https://doi.org/10.1037/a0036523>
- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Sage.

- Ponce-Garcia, E., Madewell, A. N., & Kennison, S. M. (2015). The development of the Scale of Protective Factors: Resilience in a violent trauma sample. *Violence and Victims, 30*(5), 735–755. <https://doi.org/10.1891/0886-6708>
- Reches, R., & Sondaite, J. (2017). Resilience to trauma by Holocaust survivors: Factors in surviving, coping and thriving. *Holocaust. Studii și Cercetări, 9*(10), 211–226.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry, 147*(6), 598–611. <https://doi.org/10.1192/bjp.147.6.598>
- Sink, C., & Stroh, H. (2006). Practical significance: The use of effect sizes in school counseling research. *Professional School Counseling, 9*, 401–411. <https://doi.org/10.5330/prsc.9.4.283746k664204023>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The Brief Resilience Scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine, 15*(3), 194–200. <https://doi.org/10.1080/10705500802222972>
- Smith, A. J., Felix, E. D., Benight, C. C., & Jones, R. T. (2017). Protective factors, coping appraisals, and social barriers predict mental health following community violence: A prospective test of social cognitive theory. *Journal of Traumatic Stress, 30*(3), 245–253. <https://doi.org/10.1002/jts.22197>
- Smith, R. L., Karaman, M., Balkin, R., & Tarwar, S. (2019). Psychometric properties and confirmatory factor analysis of the achievement motivation measure. *British Journal Guidance and Counseling Careers Research and Advisory Centre (Cambridge, England), Taylor & Francis Routledge*. <https://doi.org/10.1080/03069885.2019>

- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., & Sigmon, S. T. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570–585.  
<https://doi.org/10.1037//0022-3514.60.4.570>
- Spitzer, R. L., Kroenke, K., Woudiams, J. B. W., & Lowe, B. (2006). A Brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine*, *166*(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson.
- Watson, J. C. (2017). Establishing evidence for internal structure using exploratory factor analysis. *Measurement and Evaluation in Counseling and Development*, *50*(4), 232–238.  
<https://doi.org/10.1080/07481756.2017.1336931>
- Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science*, *4*(3), 81–84. <https://doi.org/10.1111/1467-8721.ep10772327>

## LIST OF APPENDICES

APPENDICES	PAGE
Appendix 1. Shapiro Wilk Test of Normality.....	132
Appendix 2. Skewness Statistics.....	132
Appendix 3. KMO and Bartlett's Test.....	132
Appendix 4. Communalities of BTRS Items.....	133
Appendix 5. Scree Plot.....	134
Appendix 6. Eigenvalues.....	134
Appendix 7. BTRS Pattern Matrix.....	135
Appendix 8. BTRS and Factors Internal Consistency Reliability.....	136
Appendix 9. Bivariate Correlations.....	137
Appendix 10. Demographic Data.....	138
Figure 1. Study Overview.....	140

### Appendix 1: Shapiro Wilk Test of Normality

Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
Hope_Total	.948	281	.000
BRS_Total	.983	281	.002
AMM_Total	.993	281	.177
GAD_Total	.931	281	.000

a. Lilliefors Significance Correction

### Appendix 2: Skewness Statistics

Descriptives			
		Statistic	Std. Error
Hope_Total	Mean	52.3413	.43084
	Skewness	-.917	.145
	Kurtosis	.965	.290
BRS_Total	Mean	3.4324	.04343
	Skewness	-.301	.145
	Kurtosis	-.176	.290
AMM_Total	Mean	35.8721	.41224
	Skewness	-.054	.145
	Kurtosis	-.379	.290
GAD_Total	Mean	7.9429	.34828
	Skewness	.636	.145
	Kurtosis	-.570	.290

### Appendix 3: KMO and Bartlett's Test

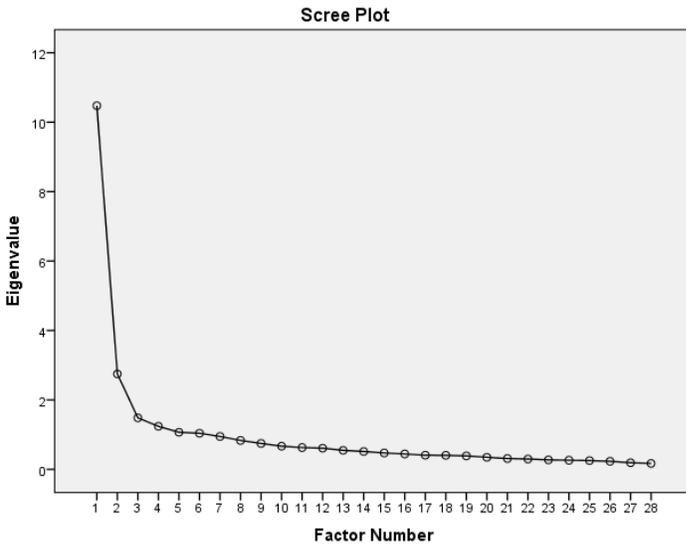
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.921
Bartlett's Test of Sphericity	Approx. Chi-Square	4243.867
	df	378
	Sig.	.000

#### Appendix 4: Communalities of BTRS Items

Communalities	Initial	Extraction
I trust those closest to me during hard times.	.467	.461
During tough times, I know who to reach out to for support.	.602	.642
After a traumatic experience, I communicate with others.	.591	.644
During tough times, I have a good support system.	.684	.759
During a crisis, people make time for me.	.649	.687
I bounce back from hardship by connecting with others.	.556	.601
I am connected to my community even when things are not going my way.	.431	.458
I am aware of my limitations when challenged.	.325	.388
I have good coping skills to handle stress.	.629	.628
I know who I am despite setbacks.	.502	.472
I am able to identify emotions following an emotional experience.	.420	.548
I maintain self-respect even when I experience a setback.	.537	.527
I remain hopeful following a traumatic experience.	.547	.593
I stay connected with others following a bad experience.	.585	.594
I am mindful of how I respond to stress.	.511	.469
My future is promising despite setbacks.	.640	.664
I am confident I can overcome challenges.	.692	.719
I am determined to accomplish my goals after a setback.	.650	.718
I remain optimistic even when met with obstacles.	.606	.572
When I experience hard times, I won't give up.	.638	.671
I believe I am worthy despite experiencing setbacks.	.644	.611
Even in the toughest of situations, I am able to see some good.	.500	.450
I am able to manage stress well.	.655	.771
I use alcohol or drugs to manage stress.	.249	.131
I remain focused despite something bad happening.	.509	.492
Even in the toughest of situations, I maintain good sleep habits.	.412	.364
Despite setbacks, I try my hardest to bounce back.	.436	.408
Even when I am stressed, I remain accountable.	.428	.363

Extraction Method: Principal Axis Factoring.

### Appendix 5: Scree Plot



### Appendix 6: Eigenvalues

#### Total Variance Explained

Initial Eigenvalues				Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.475	37.409	37.409	10.054	35.906	35.906	8.054
2	2.747	9.811	47.220	2.356	8.415	44.320	5.564
3	1.483	5.296	52.516	1.072	3.829	48.149	6.615
4	1.240	4.430	56.946	.759	2.709	50.859	5.886
5	1.068	3.815	60.761	.667	2.381	53.240	6.961
6	1.041	3.717	64.478	.494	1.764	55.004	4.521

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

## Appendix 7: BTRS Pattern matrix

Pattern Matrix<sup>a</sup>

	Factor					
	1	2	3	4	5	6
I am determined to accomplish my goals after a setback.	.974					
I am confident I can overcome challenges.	.829					
When I experience hard times, I won't give up.	.690					
My future is promising despite setbacks.	.600					
I believe I am worthy despite experiencing setbacks.	.473					
Despite setbacks, I try my hardest to bounce back.	.424					
I remain optimistic even when met with obstacles.	.404				.351	
Even when I am stressed, I remain accountable.	.331					
During tough times, I have a good support system.		.830				
During a crisis, people make time for me.		.784				
During tough times, I know who to reach out to for support.		.710				
I trust those closest to me during hard times.		.662				
I am able to manage stress well.			.930			
I have good coping skills to handle stress.			.676			
Even in the toughest of situations, I maintain good sleep habits.			.420			
I remain focused despite something bad happening.			.395			
After a traumatic experience, I communicate with others.				.750		
I bounce back from hardship by connecting with others.				.686		
I stay connected with others following a bad experience.				.650		
I am connected to my community even when things are not going my way.	.325			.579		
I remain hopeful following a traumatic experience.					.636	
I maintain self-respect even when I experience a setback.					.484	
I use alcohol or drugs to manage stress.					.377	
I know who I am despite setbacks.					.375	
Even in the toughest of situations, I am able to see some good.						
I am able to identify emotions following an emotional experience.						.717
I am aware of my limitations when challenged.						.594
I am mindful of how I respond to stress.						

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 8 iterations.

Appendix 8: BTRS and Factor Internal Consistency Reliability

a. BTRS Total Scale Reliability

Reliability Statistics

---

Cronbach's Alpha Based on		
Cronbach's Alpha	Standardized Items	N of Items
.901	.906	14

---

b. BTRS Factor 1 Reliability

Reliability Statistics

---

Cronbach's Alpha Based on		
Cronbach's Alpha	Standardized Items	N of Items
.892	.894	7

---

c. BTRS Factor 2 Reliability

Reliability Statistics

---

Cronbach's Alpha Based on		
Cronbach's Alpha	Standardized Items	N of Items
.864	.864	4

---

d. BTRS Factor 3 Reliability

Reliability Statistics

---

Cronbach's Alpha Based on		
Cronbach's Alpha	Standardized Items	N of Items
.799	.797	3

---

## Appendix 9: Bivariate Correlations

### Correlations

		Hope Total	BRS Total	AMM Total	GAD Total	Spiritual Beliefs	BTRS Total
Hope Total	Pearson Correlation	1	.509**	.576**	-.259**	.281**	.653**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	281	281	281	281	280	281
BRS Total	Pearson Correlation	.509**	1	.411**	-.498**	.152*	.635**
	Sig. (2-tailed)	.000		.000	.000	.011	.000
	N	281	281	281	281	280	281
AMM Total	Pearson Correlation	.576**	.411**	1	-.152*	.092	.539**
	Sig. (2-tailed)	.000	.000		.011	.124	.000
	N	281	281	281	281	280	281
GAD Total	Pearson Correlation	-.259**	-.498**	-.152*	1	-.075	-.363**
	Sig. (2-tailed)	.000	.000	.011		.209	.000
	N	281	281	281	281	280	281
Spiritual Beliefs	Pearson Correlation	.281**	.152*	.092	-.075	1	.248**
	Sig. (2-tailed)	.000	.011	.124	.209		.000
	N	280	280	280	280	280	280
BTRS Total	Pearson Correlation	.653**	.635**	.539**	-.363**	.248**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	281	281	281	281	280	281

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Appendix 10: Demographic Data

a. Age

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-23	156	55.5	55.7	55.7
	24-30	67	23.8	23.9	79.6
	31-40	34	12.1	12.1	91.8
	41-50	13	4.6	4.6	96.4
	50+	10	3.6	3.6	100.0
	Total	280	99.6	100.0	
Missing	System	1	.4		
Total		281	100.0		

b. Gender

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	75	26.7	27.0	27.0
	Female	203	72.2	73.0	100.0
	Total	278	98.9	100.0	
Missing	System	3	1.1		
Total		281	100.0		

c. Ethnicity

Ethnicity		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	African American	11	3.9	3.9	3.9
	Asian American	9	3.2	3.2	7.1
	Hispanic or Latino	134	47.7	47.9	55.0
	Native American or Pacific Islander	3	1.1	1.1	56.1
	White, Non-Hispanic	101	35.9	36.1	92.1
	Bi-racial, Other	22	7.8	7.9	100.0
	Total	280	99.6	100.0	

Missing System	1	.4
Total	281	100.0

d. Marital Status

Marital Status		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	230	81.9	82.1	82.1
	Married	42	14.9	15.0	97.1
	Widowed	2	.7	.7	97.9
	Divorced	6	2.1	2.1	100.0
	Total	280	99.6	100.0	
Missing	System	1	.4		
Total		281	100.0		

e. Education

Education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some College	118	42.0	42.1	42.1
	Associates/Certificate	48	17.1	17.1	59.3
	Bachelor	72	25.6	25.7	85.0
	Master	36	12.8	12.9	97.9
	PhD	6	2.1	2.1	100.0
	Total	280	99.6	100.0	
Missing	System	1	.4		
Total		281	100.0		

Figures 1: Study Overview

