

EXPLORING THE RELATIONSHIP BETWEEN LOSS OF RESOURCES AND
POSTTRAUMATIC GROWTH WHEN MODERATED BY RELIGIOUS COPING IN WEST
GRAND BAHAMIANS THREE YEARS FOLLOWING HURRICANE MATTHEW

by

Andy Nakia Laing

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

School of Behavioral Sciences

Liberty University

2020

EXPLORING THE RELATIONSHIP BETWEEN LOSS OF RESOURCES AND
POSTTRAUMATIC GROWTH WHEN MODERATED BY RELIGIOUS COPING IN WEST
GRAND BAHAMIANS THREE YEARS FOLLOWING HURRICANE MATTHEW

by Andy Nakia Laing

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

School of Behavioral Sciences

Liberty University, Lynchburg, VA

2020

APPROVED BY:

Daniel Marston, Ph. D., Committee Chair

William Bird, Ph.D., Committee Member

ABSTRACT

The objective of this study was to explore the relationship between loss of resources and posttraumatic growth when moderated by positive and negative religious coping in a sample of West Grand Bahamians who experienced Hurricane Matthew in 2016. It was hypothesized that religious coping would moderate this relationship and contribute to the development of posttraumatic growth and that the relationship would be influenced by the type of religious coping used. Only individuals who experienced resource loss as a result of the storm, who self-identify as a Christian, and who were residents of the community both during the storm and during the research period were used in the study. Participants were administered the Posttraumatic Growth Inventory, the Brief Religious Coping scale, and the Conservation of Resources Evaluation. Study findings suggest that participants endorsing a positive religious coping style, and who were employed or married with a higher annual income, were more likely to experience posttraumatic growth. Loss of resources shared a small to moderate, positive association with posttraumatic growth but was not a strong predictor of the experience. The study's implications, limitations, and areas for future research are discussed.

Keywords: posttraumatic growth, trauma, loss of resources, religious coping

Dedication

I first dedicate this work to the Lord Jesus Christ, who not only provided me with this awesome opportunity to pursue doctoral level studies, but who was with me even when I could not feel Him. Oh Lord, I thank you and praise you! You deserve all the glory and praise! This work belongs to you!

To my wife, Stacie, your unwavering support was the glue that kept me together many times when I felt like falling apart. You gave unselfishly of your time and resources. Thank you!

To my mother, Cola, many times when I felt like giving up, I remembered you telling me, "You can do it." Then I would press on a little more. Thank you.

To my siblings, as I pressed on, you were all on my mind. This achievement is not just for me, but for us.

To my little Shih-Poo, Samson, your silent companionship in the early morning hours as I pecked away at my computer was very comforting and reassuring, and many times, your insistence on playing throwball provided a much-needed distraction.

Acknowledgments

To my dissertation committee chair, Dr. Daniel Marston, thank you for your guidance and mentorship.

To my dissertation committee reader, Dr. William Bird, thank you for your invaluable input on my manuscript development.

To my professors at Liberty University, you have all shaped and contributed to my personal and academic development in more ways than you will ever realize.

Table of Contents

ABSTRACT.....	3
Dedication.....	4
Acknowledgments.....	5
List of Tables	10
List of Figures	11
List of Abbreviations	12
CHAPTER ONE: INTRODUCTION.....	13
Overview.....	13
Background.....	14
Historical Context of Posttraumatic Growth.....	17
Theoretical Conceptualization	19
Problem Statement	20
Purpose Statement.....	23
Significance of the Study	23
Research Questions	25
Definitions.....	26
CHAPTER TWO: LITERATURE REVIEW.....	29
Overview.....	29
Theoretical Framework.....	29
Theoretical/Conceptual Underpinning for Posttraumatic Growth.....	29
Theoretical/Conceptual Underpinning for Religious Coping.....	32
Theoretical Underpinning for Loss of Resources	34

Related Literature.....	36
Posttraumatic Growth	41
Natural Disasters and Posttraumatic Stress Symptoms	45
Natural Disasters and Posttraumatic Growth.....	48
Religious Coping and Posttraumatic Growth	50
Loss of Resources and Posttraumatic Stress Symptoms.....	53
Summary.....	55
CHAPTER THREE: METHODS.....	57
Overview.....	57
Research Design.....	57
Research Questions.....	58
Hypotheses.....	58
Participants and Setting.....	59
Sample Size Determination.....	60
Instrumentation	62
Demographic Questionnaire	62
Post Traumatic Growth Inventory	62
The Brief Religious Coping Scale (RCOPE).....	63
The Loss of Resources Scale	63
Procedures.....	64
Data Analysis	65
Correlational Analyses.....	65
Hierarchical Regressions	66

CHAPTER FOUR: FINDINGS	67
Overview	67
Participants.....	67
Descriptive Statistics and Reliability of Instruments.....	69
Research Question One.....	71
Assumptions Testing for Research Question One	71
Analysis.....	73
Research Question Two	74
Assumption Testing for Research Question Number Two and Sub-Questions....	75
Analysis.....	76
Summary	78
CHAPTER FIVE: CONCLUSIONS	80
Overview.....	80
Discussion.....	80
Research Question One.....	81
Research Question Two	82
Implications.....	85
Limitations	86
Recommendations and Future Research.....	88
REFERENCES	90
APPENDIX A: Institutional Review Board Approval Letter.....	107
APPENDIX B: Letter of Recruitment	108
APPENDIX C: Consent Form	109

APPENDIX D: Demographics Questionnaire 112

List of Tables

Table 1: Demographics of Research Participants	68
Table 2: Descriptive Statistics	69
Table 3: Two-Tailed Correlation Matrix with all Variables	70
Table 4: Summary of Assumption Testing	76
Table 5: Contributions of Each Variable	78
Table 6: Summary of Findings	79

List of Figures

Figure 1: Scatterplot.....	72
Figure 2: Boxplot	73

List of Abbreviations

Conservation of Resources (COR)

Conservation of Resources Evaluation (COR-E)

Posttraumatic Growth (PTG)

Posttraumatic Growth Inventory (PTGI)

Posttraumatic Stress Disorder (PTSD)

Religious Coping Scale (RCOPE)

CHAPTER ONE: INTRODUCTION

Overview

Natural disasters and particularly tropical cyclones are a common source of distress for individuals residing in hurricane-prone areas. These natural phenomena often inflict catastrophic devastation, leaving hundreds of thousands of dollars in damages in their aftermath. Each year during the five months (June–November) of the Atlantic Ocean hurricane season, many countries experience varying intensities of cyclonic activity and the destruction and wreckage that often accompany these storms. On October 7, 2016, when Hurricane Matthew made landfall on Grand Bahama Island in The Bahamas, hundreds of thousands of dollars of economic, property, and infrastructural damages were incurred by the residents, particularly those in the western portion of the island, which experienced the brunt of the storm. Hurricane Matthew was a Category 5 cyclone which ravaged the Caribbean islands, Cuba, and then the eastern portion of the United States between September 28 and October 9, 2016 (Stewart, 2017). The storm resulted in over 3.5 million evacuations and 585 deaths, with over 500 of these deaths taking place in Haiti. This made Hurricane Matthew the most catastrophic Atlantic hurricane since Hurricane Stan in 2005 (Stewart, 2017).

Three years post-Hurricane Matthew, the psychological impact (positive or negative) resulting from the extensive loss of resources experienced by the residents of West Grand Bahama remains unclear. Further uncertainty exists in relation to the precise coping strategies used by West Grand Bahamians to deal with the stress reactions resulting from the hurricane. Thus, the extensive loss of resources experienced by these residents formed the research context of the current study. Specifically, this study sought to assess the relationship between loss of

resources and posttraumatic growth (PTG), as well as how positive and negative religious coping might moderate this association.

In this section, background information on PTG will be given, followed by a discussion of how the lack of empirical studies on PTG in The Bahamas (or the Caribbean region) forms a gap in the extant literature and how this study attempted to fill this gap. Next, the purpose of this research, the significance of the study, and the questions that guided the research will be outlined. Last, the definitions of key terms used in this study will be provided.

Background

Traumatic events often evoke in their survivors a cascade of negative outcomes that challenge how they view the world, themselves, and others. These events, however, may also provide opportunities for the affected individuals to experience positive psychological outcomes that often allow them to exceed their pretrauma levels of psychological functioning. Tedeschi and Calhoun (2004) coined the term *posttraumatic growth* to refer to these positive changes that emerge as individuals grapple with the aftermath of highly challenging events. These changes have also been variously referred to as *adversarial growth*, *stress-related growth*, *benefit finding*, and *positive by-products* (Linley & Joseph, 2004). Individuals experiencing PTG have consistently reported an increased appreciation for life, more meaningful interpersonal relationships, an enhanced sense of personal strength, reordered life priorities, and a deeper spiritual experience (Tedeschi & Calhoun, 2004). An appreciation for life typically manifests as attempts to enjoy and find meaning in each day. Interpersonal relationships become more meaningful as existing relationships are evaluated and reprioritized and new ones are formed. Individuals also become aware of their inner strength and come to perceive themselves as stronger than they were before the traumatic event. Reordering life priorities, so that what was

once a top priority may diminish in importance, and forming new priorities are other positive changes commonly reported in the aftermath of distressing events (Tedeschi & Calhoun, 2004). Last, many individuals report a deeper connection with a spiritual entity. This typically manifests as they begin to develop a more fulfilling relationship with God (or some other spiritual entity) or participate more actively in religious/spiritual activities (Tedeschi & Calhoun, 2004).

Numerous studies have suggested that for PTG to emerge, the assumptive world of the trauma survivor must be sufficiently challenged. The *assumptive world* refers to deep beliefs and assumptions that individuals hold of themselves, others, and the world at large (Janoff-Bulman, 1989; Tedeschi & Calhoun, 2004). Tedeschi and Calhoun (2004) compared the process of challenging one's assumptive world to the seismic activities that occur following an earthquake. As deeply held assumptions are challenged and tested by life events, individuals attempt to find meaning in these occurrences (García, Cova, Rincón, & Vázquez, 2015; Schuler & Boals, 2016; Taku, Cann, Tedeschi, & Calhoun, 2015; Tedeschi & Calhoun, 2004). Assumptive beliefs typically fall into three broad categories: benevolence of the world, meaningfulness, and worthiness of the self (Janoff-Bulman, 1989). Benevolence of the world pertains to the belief in the world as a good place where kindness prevails. Meaningfulness relates to the distribution of outcomes, utilizing a sense of justice, controllability, and luck as fundamental guiding principles. Finally, worthiness of the person refers to the degree to which people view themselves as worthy and deserving, morally stable, or lucky (Janoff-Bulman, 1989).

Tedeschi and Calhoun (2004) suggested that the interplay of several personality attributes contributes to the development of PTG. Individual characteristics such as openness, extraversion, and optimism are believed to facilitate growth following traumatic occurrences. As

well, disclosure of the trauma and the quality of social support received in the aftermath of traumatic events help to influence growth outcomes. It is postulated that as individuals interact with supportive network systems following their exposure to critical events, they likely engage in emotional processing of the incident that allows them to develop constructive and adaptive narratives (Tedeschi & Calhoun, 2004). Additionally, following highly distressing events, many trauma survivors engage in cognitive processes related to the occurrence. These cognitive processes include intrusive and deliberate ruminations that are regarded as key precursors to the development of PTG (Taku, Cann, Tedeschi, & Calhoun, 2009). Intrusive rumination refers to negative forms of contextualizing an event. These cognitive activities are commonly associated with the development of posttraumatic stress symptoms. Conversely, deliberate ruminations involve attempts to achieve greater understanding and derive meaning from the event. This form of cognitive processing has been frequently linked to the emergence of PTG and other positive psychological outcomes (Taku et al., 2009).

When natural phenomena take place and result in loss of resources, these occurrences may serve as a catalyst that stimulates the development of PTG. Natural disasters often elicit in survivors a myriad of stress reactions, prompting the use of coping strategies as a means of stress alleviation (Sattler, 2006). One means by which individuals attempt to cope with the stress generated by resource loss is by using religious coping strategies. Numerous studies (see for example, Azizzadeh Forouzi, Roudi RashtAbadi, Heidarzadeh, Malkyan, & Ghazanfarabadi, 2018; García, Páez-Rovira, Zurtia, Martel, & Reyes Reyes, 2010; Ghafouri, Ghanbari, Fallahzadeh, & Shokri, 2016; Park et al., 2017) have suggested an association between PTG and religious coping. Religious coping behaviors have been identified as positive or negative, with each coping style associated with specific outcomes. Positive religious coping denotes a secure

relationship with God, a view of God as a collaborator in recovery from the trauma, and a perception of God as benevolent and loving. Positive religious coping has often been linked to positive posttraumatic outcomes, including PTG. When trauma-afflicted individuals engage in negative religious coping, they see God as punitive and unloving. This form of coping with trauma is generally associated with poorer psychological well-being and negative posttrauma outcomes (Thomas & Savoy, 2014)

Historical Context of Posttraumatic Growth

The idea that suffering and pain might result in great benefit is a central theme of many ancient and contemporary practices and has been captured in much religious and philosophical literature (Aldwin, 1994; Tedeschi & Calhoun, 1995). Key religious and spiritual philosophies have espoused suffering as a prerequisite for spiritual growth, and the suffering or death of key entities such as Jesus Christ is believed to have resulted in improved human conditions. It was written of Christ by the Prophet Isaiah that:

He was despised and forsaken of men, a man of sorrows and acquainted with grief; and like one from whom men hide their face He was despised, and we did not esteem Him. Surely our griefs He Himself bore, and our sorrows He carried; yet we ourselves esteemed Him stricken, smitten of God, and afflicted. But He was pierced through for our transgressions, He was crushed for our iniquities; the chastening for our well-being fell upon Him, and by His scourging we are healed. (Isa. 53:3–5, A Conservative Version)

Similarly, the notion that human suffering might prove beneficial in the long term is embedded in the Buddhist tradition. Buddhist philosophy is believed to have emerged from the attempts by Prince Siddhartha Gautama to come to terms with human suffering and his

recognition of the certainty of human mortality (Calhoun & Tedeschi, 2006). As well, a salient belief entrenched in many Islamic and Greek writings is that human tragedy and suffering are key requirements for entering the afterlife (Calhoun & Tedeschi, 2006).

Recent scholarly attention to PTG began in the 20th century. Maslow (1954), Frankl (1963), Caplan (1964), Dohrenwend (1978), and Yalom (1980) all attempted to explicate the phenomenon of growth emanating from human suffering, disaster, and loss. Over the past two to three decades, a more systematic study of growth resulting from tragedy occurred. This scholarly focus was spurred by seminal writings and research conducted by Schaefer and Moos (1992), who wrote a book chapter on crisis and personal growth; O'Leary and Ickovics (1995) who published a paper on "resilience and thriving in response to challenge"; Park, Cohen, and Murch (1996), who published their research findings on stress-related growth; and Tedeschi and Calhoun (1995) who published their first book on PTG. Notably, these scholars all attempted to better understand individual responses to trauma in general and specifically the process of how distressing events lead to the positive psychological outcomes reported by some individuals. To better explain this process, Tedeschi and Calhoun (2004) coined the term *posttraumatic growth* to refer to these positive psychological changes.

With the systematic study of PTG came a greater understanding of the domains along which the construct occurs. Earlier conceptualizations recognized three general categories of PTG: "perception of self," "relating to others," and "philosophy of life" (Tedeschi, Park, & Calhoun, 1998). These categories have been revised and expanded to include the five domains of the current framework: personal strength, relating to others, new possibilities, spiritual change, and appreciation of life (Tedeschi & Calhoun, 2004).

Theoretical Conceptualization

To facilitate a greater understanding of positive psychological changes in the aftermath of trauma, Tedeschi and Calhoun (2004) proposed a functional-descriptive model of PTG. This model proposes that PTG follows exposure to traumatic events that are severe enough to shatter the foundation of individuals' assumptive world. When this occurs, assumptions about the world as a benevolent place, meaningfulness, and one's invulnerability splinter, prompting an evaluation of previously held assumptions (Janoff-Bulman, 1989; Tedeschi & Calhoun, 2004). This reevaluation leads to a process of intrusive then deliberate ruminations during which current schemas are revised. As individuals discard world assumptions they earlier held, they espouse a new set of world assumptions that accommodates the traumatic experience. Various factors have been proposed to predict this type of transformative outcome. These include social support, coping strategies, personality attributes, and religiosity (Shaw, Joseph, & Linley, 2005).

The loss of resources experienced during natural disasters often generates extreme psychological distress, which may provide a rich context for PTG to develop (Freedy, Saladin, Kilpatrick, Resnick, & Saunders, 1994). Hobfoll's (1989) conservation of stress theory is frequently used to provide a framework for understanding the loss of resources and the stress reactions that it evokes. Hobfoll's (1989) conservation of resources stress theory identifies four types of resources that people value and expend effort to conserve: object resources, conditions, personal characteristics, and energies. When these resources are threatened with loss or are actually lost, an array of negative psychological outcomes, including posttraumatic stress symptoms, is often triggered.

In addition to threatened or actual loss, Hobfoll (2001) further proposed that stress is likely to arise when efforts to regain lost resources are hindered. When this happens, *loss*

spirals, or the state of having insufficient resources to prevent further losses, are created. Loss spirals lead to an increased vulnerability for future losses and are often accompanied by adverse psychological reactions (Hobfoll, 1989, 2001; Hollifield et al., 2016). In a similar manner, individuals who possess extensive resources have an increased capacity to obtain other resources. This trend of resource acquisition leads to other resources being amassed and is often associated with better psychological outcomes (Hobfoll, 1989, 2001).

In summary, recent scholarly attention to posttraumatic reactions following loss of resources due to natural phenomena has focused on the positive psychological changes that individuals experience as they struggle to find meaning in traumatic events. These positive psychological outcomes, which have been termed posttraumatic growth, have been reported in a variety of populations and cultural contexts. Additionally, attempts to cope with the stress generated by natural disasters have included the use of positive and negative religious coping strategies. Studies of religious coping have reported different psychological outcomes, which seem to be linked to the style of coping being used.

One region that appears to have been underrepresented in the PTG literature is the Caribbean, and specifically The Bahamas, a country with an extensive history of devastating cyclonic activity. With this underrepresentation surfaces a lack of understanding of how PTG develops in Caribbean peoples and uncertainty regarding whether findings from previous studies are replicated. Consequently, the current study sought to fill this gap and contribute to the existing body of knowledge on PTG, resource loss, and religious coping in The Bahamas.

Problem Statement

Since becoming the focus of scholarly attention in the 1990s, studies of PTG have tended to use participants from Western, white societies, providing very little understanding of the

operation of PTG processes across different cultures. An understanding of this phenomenon in varying cultures is crucial, as cultural contexts tend to mold how traumatic experiences are perceived and the coping devices that are employed to address them. In this regard, a consideration of cultural background in attempting to understand the domains of PTG presents an important area of study (Splevins, Cohen, Bowley, & Joseph, 2010).

In addition, the extensive reliance on samples from Western cultures to study PTG has been primarily supported by *etic* (outsiders' perspective) data. The instruments/scales used to measure PTG, for example, the Posttraumatic Growth Inventory (PTGI), which is widely used in these instances, have been developed in Western cultures and carry a high probability of translation and reinterpretation biases. Because of this etic perspective, an objective understanding of PTG across different cultures may not be provided (Kashyap & Hussain, 2018).

Traumatic reactions vary across cultures and pose further challenges to the current construct of PTG. This occurs as ideas of what is considered traumatic in one culture may not hold true for another, and all traumatic experiences lie open to individual interpretation. Also, every culture possesses its own unique constructs and principles that guide its members during times of distress for rebuilding their lives. Current theories of trauma may fail to extend across cultures or may only partially explain traumatic reactions. This uncertainty creates a need for cross-cultural research from an *emic* (or insider) standpoint. Such a framework may prove particularly useful in providing further insight and understanding of how traumatic events are interpreted across different cultural contexts (Kashyap & Hussain, 2018).

On the surface, the universality of the concept of PTG seems acceptable. Caution should be exercised when drawing conclusions, however, as theories of PTG that were developed in Western cultures may contain innate cultural biases. Moreover, the content of the world

assumptions that are held by trauma survivors across cultures is not specified by current theories of PTG, indicating instrument developers' attempts to maintain some semblance of cultural neutrality during the administration of the instrument. Hence, extreme care must be taken to ensure that Western conceptualizations of what constitutes typical world assumptions are not unintentionally imposed on other cultures and ethnicities during data collection and analysis exercises (Splevins et al., 2010).

A search of several databases (EBSCO, PsycINFO, Google Scholar, and PILOTS [Published International Literature on Traumatic Stress]) was conducted using the specific search terms *PTG*, *posttraumatic growth in the Bahamas*, and *post-traumatic growth in the Caribbean*. These searches yielded no results for a PTG study conducted in The Bahamas or the wider Caribbean region. One study by Shultz et al. (2016) examined the psychosocial impact of Hurricane Matthew on Haiti was found, but no focused attempt was made to examine PTG in the residents.

The problem is that there is relatively little understanding of the trajectory of PTG in The Bahamas (and broader Caribbean region), a country, that because of its geographic location in the Atlantic Ocean, is particularly vulnerable to annual tropical cyclonic activities. Previous findings of PTG from other regions may be used to make inferences on how this construct develops, but the lack of empirical studies conducted in this country makes it difficult to understand the unique characteristics that come into play as West Grand Bahamians attempt to cope with losses incurred during a devastating hurricane. Additionally, the moderating influence of religion and the way that religious coping is used by the Bahamian people to cope with traumatic events is unclear. Consequently, the current study sought to fill this gap in knowledge and add to the existing body of literature.

Purpose Statement

The overall purpose of the current study was to examine the relationship between loss of resources (predictor variable) and PTG (outcome variable) when moderated by religious coping (moderating variable) in a nonclinical sample of West Grand Bahamians who experienced Hurricane Matthew in 2016. Specifically, there were two aims of this study. The first was to explore whether previous findings of positive psychological changes emerging from individuals' struggle to make sense of traumatic incidents (PTG) would be replicated in a Caribbean sample as evidenced by changes in the key life domains measured by the PTGI. The second aim was to explore how the use of negative and positive religious coping moderate the relationship between loss of resources and PTG and identify the demographic characteristics that may further influence this relationship in the identified sample. A greater understanding of how PTG develops in nonWestern cultures is indicated and presents a vital area of study lacking in current scholarly research.

Significance of the Study

This study adds to the current literature on the association between traumatic losses due to tropical cyclones and the development of PTG using a sample of participants from the West Grand Bahamian population in The Bahamas. Previous studies on PTG (Danahauer et al., 2013; Helgeson, Reynolds, & Tomich, 2006; Joseph & Linley, 2005; Khanna & Greyson, 2015; Linley & Joseph, 2004; Rzeszutek & Gruszczyńska, 2018; Tedeschi & Calhoun, 2004; Tedeschi & McNally, 2011; Vanhooren, Leijssen, & Dezutter, 2017; Zwahlen, Hagenbuch, Carley, Jenewein, & Buchi, 2010) have established a clear link between trauma and the development of PTG in individuals as they grapple with the aftermath of distressing life events. Such studies, however, have relied heavily on the use of samples from Western, Eurocentric societies,

providing little understanding of how this phenomenon unfolds in Caribbean cultures which present with their own unique features. The Caribbean region is comprised of a chain of countries stretching from the islands of The Bahamas in the north to Trinidad and Tobago in the south, Cuba in the east, and Barbados in the west. Venezuela, Guyana, Suriname, and French Guinea are also included in the Caribbean region, although some geographic delineations exclude them (Lewis, 2004). The region may also be divided into the Greater and Lesser Antilles. The Greater Antilles comprise Cuba, Jamaica, Hispaniola, Puerto Rico, and the surrounding islands. The Lesser Antilles include the islands east and south of Puerto Rico.

The Caribbean has its own unique social, ethnic, and political heritage, as well as a system of values that differentiates it from neighboring regions (Lewis, 2004). Christianity forms the religious foundation of the majority of the Caribbean, and the countries possess salient characteristics of their colonizers along with elements of other ethnic groups that have settled there, including African, Asian and European influences.

Additionally, while efforts to foster greater cultural sensitivity and applicability of the PTGI, a commonly used instrument for measuring PTG, by constructing various adaptations have been made, the literature indicates that the tool is validated in cultural contexts external to the ones in which they are commonly used. Furthermore, use of the initial version of the PTGI (or one of its subsequent variations) in cultures that differ from the one where it was constructed may give rise to biases that affect the cross-cultural validity of the instrument. This, in turn, may yield findings that inaccurately or insufficiently reflect the course of PTG across cultures (Splevins et al., 2010). The current study, then, using a sample from the Caribbean region, attempted to fill this gap and add to the existing body of cross-cultural literature on PTG.

In addition, as individuals struggle to make sense and find meaning in devastating and catastrophic incidents, including natural disasters, religious coping strategies are frequently utilized (Pargament, Feuille, & Burdzy, 2011). Again, a clear understanding of how religious coping moderates the association between resource loss and PTG in the proposed sample is lacking. Therefore, an examination of this process not only adds to the extant literature on religious coping but also fosters an increased understanding of PTG and religious coping constructs in a Bahamian context. The findings from this study may provide some indication of how Bahamian clinicians can intervene with individuals who have survived deadly tropical cyclones.

Research Questions

Given the purpose of the current study, the primary research questions were:

RQ1: Is there a statistically significant relationship between resource loss and the PTG of West Grand Bahamians affected by Hurricane Matthew?

RQ2: While controlling for demographic and employment variables, how, if at all, do resource loss and positive and negative religious coping predict the PTG of West Grand Bahamians affected by Hurricane Matthew?

RQ2a: What demographic and employment variables predict the PTG of West Grand Bahamians impacted by Hurricane Matthew?

RQ2b: How does resource loss predict the PTG of West Grand Bahamians affected by Hurricane Matthew?

RQ2c: How does positive and negative religious coping predict the PTG West Grand Bahamians affected by Hurricane Matthew?

Definitions

1. *Assumptive world* – A set of firmly established beliefs or assumptions that an individual has about the world, others, and himself/herself that have been formed over many years of experience. These assumptions guide how individuals plan and act (Janoff-Bulman, 1989).
2. *Conservation of resources (COR)* – A construct which posits that resource loss is the major factor in determining the psychological outcomes of stressful events and that individuals are motivated to protect their current resources (conservation) and acquire new resources (acquisition; Hobfoll, 1989, 2001).
3. *Conservation of Resources Evaluation (COR-E)* – An instrument consisting of 74 single-scale items designed to measure the amount of self-reported resource loss experienced by an individual following a severely challenging event. The measure assesses the extent of object, personal characteristic, condition, and energy resource losses (Hobfoll, Tracy, & Galea, 2006).
4. *Deliberate rumination* – Attempts to find meaning and make sense of a traumatic experience (Eze, Ifeagwazi, & Chukwuorji, 2019).
5. *Intrusive rumination* – Negative automatic thoughts that arise in response to a traumatic event. These thoughts are repetitive and arise against the will of the trauma survivor (Eze et al., 2019).
6. *Loss of resources* – The destruction of resources, including objects, personal attributes, conditions, or energies, that are esteemed by an individual. For many individuals, the threat of loss of resources, the actual loss of resources, or the failure to reacquire resources following loss are daunting realities (Hobfoll, 1989).

7. *Negative religious coping* – An insecure relationship with God and religious struggle as an individual struggles to make sense and find meaning in a distressing event (Thomas & Savoy, 2014).
8. *Positive religious coping* – A coping mechanism which denotes a sense of spirituality and a secure relationship with God. As individuals struggle to make sense of traumatic events, a belief that life has purpose and meaning and the formation of spiritual connectedness with others are utilized as coping strategies (Pargament et al., 1998).
9. *Posttraumatic growth (PTG)* – Positive psychological changes that emerge as an individual grapples with the aftermath of highly distressing events (Tedeschi & Calhoun, 2004).
10. *Posttraumatic Growth Inventory (PTGI)* – A 21-item measure of PTG on which respondents rate the degree of change they experience along the domains of new possibilities, relating to others, personal strength, spiritual change, and appreciation of life (Tedeschi & Calhoun, 1996).
11. *Posttraumatic stress disorder (PTSD)* – A psychiatric disorder that can occur following exposure to a traumatic event such as a natural disaster, a serious accident, a terrorist act, war/combat, rape, or other violent personal assault. Witnessing these events or learning about them happening to relatives or close friends may also lead to the development of PTSD (American Psychiatric Association, 2013).
12. *Religious Coping Scale (RCOPE)* – The Brief RCOPE is a 14-item measure of religious coping with major life stressors that is commonly used to assess positive and negative aspects of religious coping (Pargament et al., 2011; Rosmarin, Pirutinsky, & Pargament, 2011; Xu, 2018).

13. *Resources* – Objects, personal characteristics, conditions, or energies that individuals value or that aid with the attainment of these objects (Hobfoll, 1989).

CHAPTER TWO: LITERATURE REVIEW

Overview

This literature review provides information on the development of PTG following a devastating Category 5 hurricane. In particular, the association between a loss of resources and PTG, when moderated by positive and negative religious coping, will be discussed. The review will first explore the theoretical underpinnings of PTG, religious coping, and conservation of resources. Included will be an overview of trauma and negative psychological and physical traumatic outcomes; the relationship between natural disasters, posttraumatic stress symptoms, and PTG; and risk factors for negative psychological and physical outcomes following traumatic events. Next, PTG, including some factors that contribute to the positive psychological outcomes that manifest in some individuals following highly distressful events, will be explored. PTG in the context of natural disasters will be discussed next, followed by a review of the impact of a loss of resources on impacted individual's well-being. This section includes information on the types of resources and the meanings that are attached to them by the individuals experiencing the loss. The use of negative and positive religious coping styles as a means of helping to find meaning following traumatic events will be examined next. Specifically, positive and negative coping strategies, and how these are used by individuals in different traumatic contexts, will be reviewed. Finally, information on how religious coping may help to foster PTG following a loss of valued resources and some gaps in the extant literature will be explored.

Theoretical Framework

Theoretical/Conceptual Underpinning for Posttraumatic Growth

To facilitate an understanding of the positive psychological changes that some individuals undergo as they grapple with challenging life events, Tedeschi and Calhoun (2004)

proposed a functional-descriptive theory of PTG. PTG is conceptualized as positive psychological outcomes that occur as individuals struggle to make sense and find meaning following a highly distressing event. These changes often co-occur with posttraumatic stress symptoms, clearly indicating that negative outcomes do not preclude growth and that growth and pathology can coexist. These distressing incidents typically present significant challenges to individuals' coping resources, spurring an examination of previously held views about self, others, and the world (Janoff-Bulman, 1992; Tedeschi & Calhoun, 2004). Tedeschi and Calhoun's (2004) model of PTG explores the interplay between traumatized individuals and their environment in the framework of attempts to cope with and derive meaning from the event. Specifically, the authors explored how personality traits and initial reaction to the stressful event contributed to the development of PTG. Other contributory factors that were assessed included individuals' view of themselves, others, and the world; self-disclosure and the reactions of supportive others; and cognitive processing activities (for example, rumination).

Tedeschi and Calhoun (2004) proposed that personality traits are key contributing factors to the development of PTG since people with different personality patterns respond to challenging life events in different ways. While the role played by personality traits in the development of PTG is not the focus of this study, a brief explication is provided to further advance an understanding of PTG. Tedeschi and Calhoun (2004) argued that individuals who display high levels of extraversion, openness, agreeableness, and conscientiousness are more likely to experience positive psychological outcomes (Costa & McCrae, 1992; Tedeschi & Calhoun, 2004). Many studies (e.g., Calhoun, Cann, & Tedeschi, 2010; Karanci et al., 2012; Owens, 2016) have provided findings which suggest that personality attributes play a crucial role in how individuals process trauma and in turn experience growth from their attempts to find

meaning. Taku and McLarnon (2018), for example, investigated the relationships between personality traits and PTG from a person-centered approach. The study specifically investigated PTG profiles by looking at distinct levels of the five PTG domains (personal strength, relating to others, new possibilities, appreciation of life, and spiritual and existential changes) using latent profile analysis. The study's participants reported a variety of stressful life events including serious illness or the death of a close friend. The results suggested that individuals with personality styles of extraversion, openness, agreeableness, and conscientiousness experienced higher levels of PTG.

As individuals face traumatic events, a myriad of distressing emotions is evoked, setting in motion a series of ruminative activities. These ruminative activities are necessary if the individual is to successfully resolve the emotional disruption caused by the event and go on to experience PTG. Tedeschi and Calhoun (2004) postulated that in the initial period following a traumatic event, intrusive negative rumination and automatic thoughts related to the event dominate. During these intrusive ruminations, individuals impacted by trauma eventually disengage from previously held assumptions and begin to engage in a more deliberate ruminative process (Tedeschi & Calhoun, 2004). There is no set timeframe for this ruminative activity; the process may last for months or years following the traumatic event. Tedeschi and Calhoun (2004) maintained that taking longer periods of time to process the traumatic aftermath may be beneficial, as a speedy resolution of the experience may indicate that the challenge was insufficient to initiate the PTG process.

Support and disclosure also aid the development of PTG, according to Tedeschi and Calhoun's (2004) theory. As traumatized individuals interact with supportive others, opportunities to reconstruct more adaptive narratives about the distressing event are presented

(Neimeyer, 2001; Tedeschi & Calhoun, 1996, 2004). Over time, this narrative is integrated into the schema (deeply ingrained belief structures) of trauma-impacted individuals, who then seek to make sense and derive meaning from the event. As well, as individuals formulate alternative narratives about their traumatic experience, and as they recount their stories to supportive others, they engage with the emotional components of the event, which in turn leads to a greater sense of intimacy and well-being.

Theoretical/Conceptual Underpinning for Religious Coping

The use of religion to cope with stressful events is a common practice among many trauma survivors who attempt to make sense of painful circumstances by looking to a sacred entity for divine assistance (Pargament et al., 2011). One framework commonly used to explain how people strive to understand painful events is religious coping theory (Pargament et al., 2011). Since becoming a focus of systematic scholarly attention, religious coping has been studied across many different contexts and has evolved into its current conceptualization. Pargament et al. (2011) noted that initial attempts to assess religious coping relied extensively on global indices, such as how often individuals participated in worship services, how often they prayed, their religious affiliations, and self-rated religiousness. This approach, however, failed to capture the specific impact of religion on the psychological, social, or physical functioning of trauma-afflicted individuals. More recent attempts to understand the role of religion in coping with painful circumstances have relied on qualitative means. These approaches have examined patterns of religious attitudes and beliefs with a focus on intrinsic and extrinsic religious practices, fundamentalist religious practices, God attachment, and attitudes that are held about the church (Pargament et al., 2011). Like earlier attempts, these efforts have presented with

deficiencies and failed to account for the precise manner in which religion manifests in relation to challenging life circumstances.

Pargament et al.'s (2011) theory of religious coping presented a more comprehensive construct that better captures how religious coping is used to cope with life's tragedies. In their conceptualization, the active role individuals play in understanding distressing situations is underscored. Individuals' behavior is seen as a dynamic transaction between the individual and the disturbing event that occurs within the larger sociocultural context in which the individual is embedded. Religious coping is viewed as attempts to find meaning from and deal with distressing events in a manner associated with a sacred entity. The term *sacred* in this context denotes not only traditional views of God but also of other entities and aspects of life to which divinity has been ascribed.

Pargament et al.'s (2011) model of religious coping delineates several key functions of religious coping. First, religious coping helps individuals to find meaning in difficult situations, build intimacy, reduce anxiety, become transformed, establish identity, derive a sense of control, and build a sacred or spiritual identity. Second, religious coping helps individuals to articulate and clarify emotions, thoughts, and behaviors as well as relationships as they attempt to cope with painful life events. Third, religious coping is not static but is a dynamic process which allows people to adapt to change over varying contexts and periods of time. Fourth, religious coping outcomes may prove beneficial or detrimental to individuals, suggesting that positive outcomes are not necessarily guaranteed. Fifth, religious coping may prove to be a deeply enriching and meaningful experience because of its focus on sacred issues that are valued by individuals. And last, as religious coping is studied, valuable empirical data on the precise relationship between religion and positive health and psychological outcomes is generated.

Religious coping styles may be positive or negative, and both styles are commonly used by individuals in their struggle with stressful events. Positive religious coping strategies include reframing the negative aspects of an event to achieve a more positive outlook and viewing God as a partner during painful events and allowing oneself to experience His love. This approach denotes a secure relationship with God, a healthy sense of connection with others, and a benevolent worldview (Xu, 2018). Positive religious coping helps individuals who have experienced highly stressful events to derive meaning from their experience and better understand the nature of the event and its consequences (García, Páez-Rovira, Reyes-Reyes, & Álvarez, 2017).

Conversely, negative religious coping strategies are indicated by an individual viewing a traumatic event as punitive, taking a passive approach of seeking God's help with resolving issues evoked by the event, or attempting to cope with challenging situations by depending on self-effort. The use of these strategies typically indicates a discordant relationship with God, as well as intrapersonal and interpersonal tensions that have not been resolved (Rosmarin et al., 2011).

Theoretical Underpinning for Loss of Resources

In this study, Hobfoll's (1989) theory of conservation of resources (COR) was used to explicate the relationship between loss of resources and PTG. Hobfoll's (1989) COR theory is grounded in psychodynamic and humanistic perspectives and draws on key aspects of these theories to explain human motivations. Specifically, Hobfoll (1989) used Freud's *pleasure principle* to explain how people seek out moments of pleasure and opportunities that are likely to yield successful outcomes. Similarly, a driving motivator behind most human interactions is to

acquire physical, social, and psychological resources that are believed to increase opportunities for leading fulfilling lives.

COR theory provides a contemporary, comprehensive framework for conceptualizing stress in the context of loss of resources. Stress is predicted to result from the loss of resources, often leading to negative psychological outcomes. Resources are classed as objects, personal attributes, conditions, or energies that are valued by an individual (Hobfoll, 1989) and include mastery, self-esteem, employment, learned resourcefulness, and socioeconomic status (Hobfoll, 1989). Object resources are resources that have acquired value because of the actual monetary value of the item or because of the status it affords the holder. Conditions are resources that are valued and pursued by their holder. Personal characteristics are resources that offset stress or facilitate stress relief. Energies are valued because they assist with the acquisition of other resources (Hobfoll, 1989; Hollifield et al., 2016). COR theory postulates that individuals strive to conserve current resources and acquire additional resources of value. Resources carry instrumental and symbolic value for resource-holders and are valuable because they help holders to define who they are.

One possible threat to an individual's resources is environmental forces. Environmental factors not only carry the potential to significantly deplete resources but may also impede opportunities for acquiring other resources (Hobfoll, 1989). When faced with environmental threats, efforts are made to minimize resource loss by mobilizing other resources, avoid threatening situations, and cope with the stress of the losses in ways that promote functioning and well-being. When opportunities to replenish lost resources are hindered, psychological distress is a likely outcome. Oftentimes, individuals invest other resources to conserve their current resources or use current resources to aid with additional resource gain (Hobfoll, 1989).

When no threat of loss of current resources is present, energy is devoted to acquiring additional resources to offset possible losses in the future. This typically leads to a general feeling of well-being (Hobfoll, 1989).

When individuals are faced with the threat of loss to their current resources, when resource loss is experienced, or when there is a failure to replenish lost resources after investing in other resources, *loss spirals* or *loss gains* are created. Loss spirals occur when there is a lack of resources to offset the loss of current resources, making individuals more vulnerable to future losses (Hobfoll, 1989, 2001; Hollifield et al., 2016;). With the continued threat of loss to resources and as loss spirals arise, the emergence of other stressors may occur, increasing the likelihood of negative psychological outcomes (Hobfoll, 1989, 2001). Conversely, individuals who possess substantial resources are more likely to acquire other resources, and an initial gain in resources is likely to set in motion a trend in which further gains are acquired (Hobfoll, 1989, 2001).

Related Literature

The experience of trauma is quite common, and many individuals report experiencing at least one traumatic event during their lifetime (Friedman, 2015). Research has consistently suggested that trauma may result from natural disasters, manmade disasters, accidents, the death of a loved one, or personal incident. Trauma is understood to be psychological harm incurred following exposure to “actual or threatened death, serious injury or sexual violation in which intense fear, horror or helplessness dominates” (Sanderson, 2013, p. 17). Trauma may also result from witnessing traumatizing events, learning that close relatives or friends were involved in traumatic events, or from constant exposure to the aversive details of traumatic events (Sanderson, 2013).

Common outcomes of trauma exposure include PTSD, depression, and anxiety, and studies have suggested that many individuals go on to experience negative mental health outcomes in the aftermath of highly distressing life events. One of these studies (Bleich, Gelkopf, Melamed, & Solomon, 2006) surveyed Israeli natives who had been exposed to ongoing terrorism since September 2000. The study sought to identify the psychological sequelae that may result from repeated exposure to terrorism and to isolate factors that lead to vulnerability and resiliency. There were 501 participants in the study. Of this number, 56 (11.2%) had experienced an act of terrorism firsthand, and 101 (20.2%) had relatives or friends who had been exposed to a terrorist act. The findings from the study indicated that 45 (9%) of the participants met the diagnostic criteria for PTSD, 72 (14.4%) were traumatic stress resilient, 147 (29.5%) felt depressed, 50 (10.4%) experienced anxiety symptoms, 235 (47%) participants life-threatening danger, and 48 (9.7%) felt that they required clinical intervention.

Another study examined negative psychological outcomes following a natural disaster. McGuire et al. (2018) investigated the role that social support plays in moderating the relationship between natural disaster exposure (Hurricane Katrina) and PTSD and depression. The findings suggested that while social support had an attenuating effect on PTSD and depression symptoms, the psychological effects of Katrina on the participants were negative.

Other studies (Arcaya et al., 2017; Atwoli et al., 2014; Benfer et al., 2018; Kerig, Chaplo, Bennett, & Modrowski, 2016; Monson, Lonergan, Caron, & Brunet, 2016; Read et al., 2012; Pridham & Magone, 1996; Resnick, Bond, & Mueser, 2003) have also suggested a strong association between trauma exposure and negative mental health outcomes. These studies have consistently found that individuals who have experienced severe crises go on to develop

psychological disturbances that often require clinical intervention for symptom reduction or alleviation to take place.

The mounting body of evidence alluding to the association between critical life events and negative psychological outcomes gives rise to the question of what factors make some individuals more prone to manifesting negative mental health responses than others. Traumatic reactions and outcomes vary from individual to individual, and an event that is traumatic for one individual may have the opposite effect on another. Studies have suggested that posttraumatic outcomes may be influenced by gender, marital status, religious orientation, level of education, developmental stage, trauma history, employment status, fear of injury, and property loss (Cerdeira et al., 2013; Cheng et al., 2013; Lee, 2011). One meta-analytic review, for example, studied posttraumatic stress reactions in a sample of children and adults following a natural disaster. The findings indicated that for adults, being female; being unmarried; holding religious beliefs; having a poor education and/or history of traumatic experiences; experiencing fear, injury, or the death of a loved one during the disaster; becoming unemployed, and experiencing property loss were strongly associated with negative psychological outcomes (Tang, Liu, Liu, Xue, & Zhang, 2014). In children, feelings of intense fear or being trapped, receiving injuries, experiencing loss or the death of a relative, witnessing others dying or being injured, and a lack of supportive networks predicted poor posttraumatic adjustment (Rzeszutek & Gruszczyńska, 2018).

Another study found that that the cognitive appraisals that individuals make of adverse life events significantly contributed to the manifestation of negative mental health outcomes. Joseph and Williams (2005), for instance, in their retrospective account of building a psychosocial framework for conceptualizing individual variation in responses to trauma, noted that following a traumatic event, as individuals grapple with the aftermath, a series of cognitive

appraisals and reappraisals occur. They further noted that these cognitive activities are often linked to reactions of guilt, shame, fear, or anger, and that a number of coping strategies are employed as individuals attempt to manage distressing emotions and derive meaning from the experience (Joseph & Williams, 2005).

Similarly, Bryant and Guthrie (2005) found in a study that the tendency to engage in maladaptive appraisals following trauma exposure commonly result in unpleasant posttraumatic outcomes. Their study tested the hypothesis that negative appraisals of a traumatic experience were significantly associated with the development of stress reactions. Trainee firefighters ($N = 82$) were assessed for stress reactions during their training period and prior to experiencing a traumatic event and again at six months after commencing duty and following exposure to a traumatic incident. The results were consistent with the initial claim and suggested that a propensity to engage in negative appraisals of an event was a strong predictor of stress symptoms in the time following the event.

The two preceding studies allude to the intrusive ruminative process that is typically initiated as individuals grapple with traumatic aftermath. During this process, automatic negative thoughts surrounding the trauma tend to direct a person's thinking, resulting in greater feelings of anguish and distress. Over time, however, as the trauma survivor learns to process the trauma in a deliberate fashion, intrusive thinking subsides, and the individual begins to seek a greater sense of significance from the event.

Exposure to distressing life events has also been associated with poor physical health outcomes. Numerous studies have implied that individuals exposed to trauma demonstrate a higher vulnerability to physical health ailments (including cardiovascular disease, diabetes, gastrointestinal disorders, and cancer) than other members of the general population (Bryant &

Guthrie, 2005). One trauma context that has been especially linked to poor medical outcomes is adverse childhood events. In a study conducted by Felitti et al. (1998), the relationship between childhood emotional, physical, and sexual abuse was examined. Seven categories of adverse childhood experiences were studied (psychological, physical, or sexual abuse; parental violence; a household with substance abuse; a household with a mentally ill member; a household with a member who had attempted or committed suicide; or a household with a member who had been incarcerated). The scores from this portion of the study were then compared to measures of adult risk behavior, health status, and disease. The results from the study demonstrated a strong association between exposure to multiple adverse childhood events and poor health outcomes during adulthood, including ischemic heart disease, cancer, stroke, chronic bronchitis, emphysema, diabetes, skeletal fractures, and hepatitis (Felitti et al., 1998).

Another study conducted by Fuller-Thomson, Brennenstuhl, and Frank (2010) produced similar results. In their study, the researchers investigated the association between physical abuse perpetrated during childhood and adult heart disease, while controlling for childhood stressors, adult health behaviors, adult stressors, depression, and high pressure. The sample was comprised of 13,093 respondents from Manitoba and Saskatchewan in Canada who had been physically abused as children ($N = 1025$) and subsequently formally diagnosed with heart disease ($n = 850$). The findings suggested that the link in adults between physical abuse as children and the later manifestation of heart disease was significant, even when controlling for commonly associated mediators (Fuller-Thomson et al., 2010).

One possible explanation for this disparity in health outcomes could be that individuals who have experienced trauma produce more proinflammatory cytokines than their non-traumatized counterparts. Proinflammatory cytokines are produced by the body's immune

system following traumatic events to aid with infection control and healing. As the level of proinflammatory cytokines continues to spike, traumatized individuals develop an increased vulnerability to disease. Illnesses that are commonly associated with elevated levels of proinflammatory cytokines are coronary heart disease, heart attacks, chronic pain, premature aging, reduced or impaired immune function, a diminished capacity to heal after wounding, and Alzheimer's disease (Fuller-Thomson et al., 2010).

Posttraumatic Growth

Despite the negative psychological and physical sequelae that often follow exposure to stressful events, for some individuals, experiencing a traumatic event produces feelings of well-being that often exceed pretrauma levels. This phenomenon has been termed *posttraumatic growth* by Tedeschi and Calhoun (2004). Other names have also been used to describe positive psychological outcomes following disturbing events, including: *stress conversion* (Finkel, 1974), *stress-related growth* (Park et al., 1996), *perceived benefits* (Tedeschi & Calhoun, 1988), *thriving* (O'Leary & Ickovics, 1995), *positive by-products* (McMillen, Howard, Nower, & Chung, 2001), *flourishing* (Ryff & Singer, 1998), *positive psychological changes* (Yalom & Lieberman, 1991), and *adversarial growth* (Helgeson et al., 2006; Joseph & Linley, 2005; Linley & Joseph, 2004; Tedeschi & Calhoun, 2004).

The notion that life's most tragic events can provide opportunities from which tremendous growth occurs has existed for centuries. Bible scholars and writers of other spiritual and religious documents, for example, have recorded how the suffering of key religious (for example, Jesus Christ) and spiritual entities has resulted in the growth of groups of individuals. It was not until the 1980s, however, that the term *posttraumatic growth* formally emerged in the growth literature. More specifically, Tedeschi and Calhoun (2004) conceptualized PTG as

growth engendered as individuals struggle with traumatic aftermath. The authors postulate that as individuals grapple with the aftershocks of critical life events and as their assumptive world and schematic makeup are reconfigured, growth along key life domains begins to take place. These domains include: an increased appreciation for life, an increased sense of personal strength, enhanced interpersonal relationships, changed priorities, and a deeper awareness of spiritual and existential potential (Tedeschi & Calhoun, 2004).

Moreover, building on Janoff-Bulman's (1992) conceptualization of the assumptive world, Tedeschi and Calhoun (2004) theorized that traumatic events often lead to the shattering of deeply held beliefs about the world, self, and others. Similar to the seismic activity of an earthquake that severely disrupts the physical landscape of those in close proximity, traumatic incidents shake and permanently alter the assumptive world of individuals experiencing these events (García et al., 2015; Schuler & Boals, 2016; Taku et al., 2015; Tedeschi & Calhoun, 2004). The assumptive world refers to a set of assumptions that are held about the self, others, and the world. Individuals hold beliefs about how people should conduct themselves in particular situations, how events should play out, and their inherent ability to have an impact on key life events (Cann et al., 2011; Janoff-Bulman, 1989). These belief structures allow individuals to plan, predict, formulate perceptions, and develop an understanding of people and events in the world (Cann et al., 2011; Janoff-Bulman, 1989). Janoff-Bulman (1989) suggested that the content of an individual's assumptive world generally goes unchallenged and unquestioned. When impacted by adverse life events, however, these beliefs are challenged, and their influence on individuals' lives then emerge. Janoff-Bulman (1989) further suggested that individuals' behavior is guided by a belief in their invulnerability. The world is seen as a place

where unfortunate events happen, but people have a general propensity to believe that they are immune to or inoculated against these adverse occurrences.

The assumptive world is comprised of three broad categories with eight basic assumptions. The first assumption, *benevolence of the world*, refers to the extent to which people view the world as a benevolent (or malevolent) place. This assumption is subcategorized into benevolence of the impersonal world and the benevolence of people (Janoff-Bulman, 1989). Individuals guided by the benevolence of the impersonal world principle generally see the world as a good and friendly place, untampered by cruelty and adversity. Individuals operating on the benevolence of people principle see people as good, kind and caring.

The second main assumption relates to the meaningfulness of the world. Here, armed with their subjective assessment of benevolent or malevolent outcomes, people come to view the world in terms of the distribution of these outcomes. Three distributional principles, justice, controllability, and chance, make up the content of this assumption. People believe that outcomes are distributed according to justice, and people are believed to get what they deserve and deserve what they get. Controllability refers to the tendency to believe that people are able to control events by engaging in behaviors they have deemed appropriate. Finally, chance pertains to the belief that because there is no way of determining why certain events happen, then these events must occur strictly by chance (Janoff-Bulman, 1989).

The final category of assumptions pertains to the worthiness of the self. This category is comprised of beliefs which parallel the three distributional principles introduced above. That is, individuals typically believe that they are worthy and deserving. They see themselves as good, morally stable, and decent. Second, to the extent that they engage in behaviors that are appropriate, individuals believe that they are able to control key events in their lives. Last,

knowing their limited capacity to predict unfortunate events, people view themselves as either lucky or unlucky and sheltered from or exposed to life's misfortunes (Janoff-Bulman, 1989). After extremely distressing events, as individuals struggle to make sense of the incident, they are forced to evaluate existing beliefs in relation to the traumatic event. It is assumed that the event in and of itself is not the medium through which PTG emerges. Rather, the degree of challenge to the assumptive world coupled with the cognitive processing that typically follows provides the mechanism by which PTG develops (Cann et al., 2009).

Additionally, as individuals try to find meaning in highly stressful events, numerous ruminative activities are employed. *Rumination* refers to repetitive thoughts related to a traumatic event that may be intrusive or deliberate. Intrusive ruminations occur when people affected by adverse events engage in thoughts related to the event that are unintentional, uncontrollable, or unwanted. These thoughts about the event are viewed as destructive and often manifest in the immediate aftermath of the traumatic occurrence. Numerous studies have suggested that intrusive rumination is associated with the development of posttraumatic stress symptoms (García et al., 2015; Phelps, Williams, Raichle, Turner, & Ehde, 2008; Stockton, Hunt, & Joseph, 2014). Deliberate rumination, on the other hand, refers to thinking about an event in a deliberate manner to make sense of the catastrophic event. Deliberate ruminations are viewed as a constructive component of the growth process and often follows a period of intrusive ruminations (Leal-Soto, Carmona-Halty, & Ferrer-Urbina, 2016). As a necessary component of the growth process, deliberate ruminations have been associated with improved post-trauma outcomes.

Studies of positive posttraumatic outcomes have consistently reported that PTG emerges in a number of contexts. These include HIV (Rzeszutek & Gruszczyńska, 2018), breast cancer (

Bellizzi & Blank, 2006; Danhauer et al., 2013), cancer (Zwahlen et al., 2010), bereavement (Engelkemeyer & Marwit, 2008), combat (Tedeschi & McNally, 2011), incarceration (Vanhooren et al., 2017), amputation (Phelps et al., 2008), near-death experiences (Khanna & Greyson, 2015), and intimate partner violence (Valdez & Lilly, 2015).

Natural Disasters and Posttraumatic Stress Symptoms

Natural disasters are natural phenomena that create significant change in the environment. Natural disasters typically result from weather (or hydro-meteorologic, e.g. hurricanes, floods), earth movement (or geo-physical, e.g. earthquakes, volcanoes), or biological and ecological forces (e.g., pandemic, global warming; Leaning & Guha-Sapir, 2013; Levers, 2012). Since 1990, approximately 217 million people have been impacted annually by natural disasters (Leaning & Guha-Sapir, 2013), with an unprecedented increase in these events over the past 40 years. These phenomena have consistently been linked to spikes in the population, socioeconomic dynamics, and the interaction of environmental (e.g., deforestation, wind and water storms, temperature changes) and political forces in some world regions (Capacci & Mangano, 2015; Leaning & Guha-Sapir, 2013).

Natural disasters have also been linked to negative mental health outcomes. Research has consistently demonstrated varying degrees of trauma symptoms, including PTSD, generalized anxiety disorder, and major depression, with varying prevalence rates (e.g., Acierno et al., 2007) have manifested following natural disasters. Furthermore, trauma symptoms following natural disasters have shown higher incidence rates in women than men (e.g., Caldera, Palma, Penayo, & Kullgren, 2001; Hirschel & Schulenberg, 2009) and appear to be more common among minority ethnic groups than among Caucasians (e.g., Perilla, Norris, & Lavizzo, 2002).

One study conducted by García et al. (2015) tested a cognitive model of posttraumatic symptoms and PTG after exposure to a natural disaster. Findings from the study suggested a relationship between natural disasters and the development of posttraumatic stress symptoms in participants, although this association was mediated by ruminative activities. Another study conducted by Lajoie, Sprang, and McKinney (2010) examined the mental health status of a subset of evacuees from the Gulf Coast during Hurricane Katrina to determine the prevalence of ongoing mental health problems. One hundred and one adults who had evacuated to Louisville, Kentucky, and were living in the state at the one-year anniversary of the event or who had recently returned to the Gulf Coast were interviewed. The psychological health and well-being of the study's participants were assessed using the anxiety and depression subscales of the Hopkins Symptoms Checklist, the PTSD Checklist, and the Quality of Well-Being Self-Administered Scale. Of those interviewed, more than one half met the criteria for PTSD, and a significant number were suffering from depression or anxiety.

In another study conducted by Rosellini, Coffey, Tracy, and Galea (2014), 810 individuals living in Mississippi were recruited to assess the presence of PTSD symptom classes following Hurricane Katrina. Utilizing latent class analysis, the researchers delineated participants into four classes of symptom severity: severe, moderate, mild, and negligible. Multinomial logistic regression was then employed and demonstrated that severe to moderate posttraumatic stress symptoms were associated with experiences specific to the hurricane (e.g., being injured or witnessing death), as well as pre-and post-hurricane dynamics. Study findings suggested that the severity of PTSD symptoms was associated with the severity of the traumatic exposure, co-occurring psychological disturbance, and belief about the event.

Likewise, Harville et al. (2011) conducted a study to evaluate the relationship between the psychological outcomes of those who had experienced Hurricane Gustav and the psychological outcomes of women who also experienced Hurricane Katrina in addition to Hurricane Gustav. A total of 102 women from southern Louisiana were interviewed by telephone. Experience of the hurricanes was assessed with questions about injury, danger, and damage; depression was assessed with the Edinburgh Depression Scale; and PTSD was assessed using the Post-Traumatic Checklist. Linear and log-linear statistics were used to assess the participants' psychological well-being. Consistent with findings from previous studies, participants who were affected by both Gustav and Katrina displayed higher levels of negative mental health outcomes.

Acierno et al. (2007) also sought to determine the prevalence of and major risk factors linked with PTSD, generalized anxiety disorder, and major depressive episodes six to nine months after the Hurricanes Charley, Frances, Ivan and Jeanne in Florida in 2004. A total of 1,452 impacted individuals were recruited to participate in the study. The researchers reported a 3.6 % prevalence rate for PTSD, a 5.5% prevalence rate for generalized anxiety disorder, and a 6.1% rate for major depression.

The mounting evidence for negative mental health outcomes following natural disasters highlights the importance of understanding what contributes to people's experience of these events and their outcomes. Understanding this dynamic is important because although negative psychological outcomes are common among many survivors of natural disasters, these outcomes do not occur in all instances. This suggests that there are factors that interact to either improve or offset potential posttraumatic symptoms. The literature has consistently suggested that

individual factors as well as certain cognitive processes help to mediate the relationship between trauma and posttraumatic stress symptoms.

Natural Disasters and Posttraumatic Growth

Although natural disasters often elicit in survivors a myriad of negative effects including depression, anxiety, PTSD, and other psychological sequelae, they also provide a context for positive psychological changes to emerge (Nalipay & Bernardo, 2016). In a number of instances, the relationship between natural disasters and PTG is mediated by religion, social support, the severity of the event, and various cognitive activities (e.g., rumination) employed by individuals in the aftermath of the event. PTG has been observed in individuals who have survived a number of natural disaster contexts including earthquakes (Carter, Bell, & McIntosh, 2017; Taku et al., 2015), tsunamis (Michélsen, Therup-Svedenlöf, Backheden, & Schulman, 2017; Sattler, Assanangkornchai, Moller, Kesavatana-Dohrs, & Graham, 2014), floods (Dursun, Steger, Bentele, & Schulenberg, 2016) and hurricanes (Lowe, Manove, & Rhodes, 2013; Schneider et al., 2018).

The current study. In the current study, the natural disaster context of interest was Hurricane Matthew. Hurricanes are common occurrences in certain world regions (e.g., the Caribbean) and are often difficult to predict, prevent, or control. Each year, nearly 500 occurrences of hurricanes across the globe meet the Red Cross standards of a disaster (Norris, Baker, Murphy, & Kaniasty, 2005). Hurricanes are dangerous weather phenomena that often set in motion a set of traumatic circumstances for the impacted individuals. The aftermath of these storms is wrought with negative psychological effects that are not limited to those who experience them directly but also impact individuals who witness them (e.g. disaster workers, counselors; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002). As well, hurricanes are often

accompanied by tremendous physical and economic damage that requires huge financial allocations to repair. Other effects include death, disabilities, and threats to public health due to ecological shifts (Leaning & Guha-Sapir, 2013).

The Bahamas and natural disasters. The Bahamas is an archipelago consisting of a chain of islands and cays (pronounced *keys*) located in the Atlantic Ocean. This location leaves the country highly vulnerable to hurricanes and other tropical phenomena. According to Hillaby (2010), The Bahamas reports the greatest frequency of storm events in the Caribbean, with a national average of one hurricane brush or hit every three years and a major hurricane every 12 years. One of the earliest recorded storms to hit the country was the Great Bahamian Hurricane of 1929, which resulted in massive damages and close to 100 deaths. More recent devastating storms have included Hurricane David in 1979, Hurricane Gilbert in 1988, Hurricane Floyd in 1999, Hurricanes Frances and Jeanne in 2004, Hurricanes Katrina and Wilma in 2005, and Hurricane Joaquin in 2015.

One hurricane which caused catastrophic damages to the Bahama islands was Hurricane Matthew. The storm made landfall in The Bahamas with a wind speed of 145 miles per hour on October 7, 2016, as a Category 4 hurricane according to the Saffir-Simpson Hurricane Wind Scale (Stewart, 2017). This classification of hurricanes rates hurricane on a scale of one to five according to maximum sustained winds. Hurricanes classed as Categories 3–5 are considered major hurricanes and have the potential to take lives and inflict enormous property and infrastructural damage. After making landfall, the storm ripped through the Bahama islands, leaving a trail of property and structural damage in its wake. The hardest hit islands included New Providence, Exuma, Andros, and Grand Bahama, and especially West Grand Bahama, where an estimated 95 percent of all homes in the region (Eight Mile Rock, Holmes Rock and

West End) were severely damaged or destroyed, and physical, residential, and commercial structural damages were visible (Benfield, 2017). Major power outages took place on all of the affected islands, resulting in the closure of many business establishments for days. The total damage resulting from the storm was approximated at between \$400 million and \$600 million (Benfield, 2017).

Religious Coping and Posttraumatic Growth

Following trauma exposure, as individuals struggle to find meaning in the experience, religion is commonly used as the pathway by which this meaning-finding occurs. Religion may be defined as a set of processes expressed through motivation, belief, attitude, appraisal, or practice. Religion is usually tied to an entity that its participants view as sacred and that is the object of worship, and other sacred practices are aimed at securing the approval and favor of the sacred being (Schaefer, Blazer, & Koenig, 2008). Religious practices frequently include coping strategies used to derive understanding of some of life's most unpleasant moments (Pargament, 1997; Pargament & Abu-Raiya, 2007).

Traumatic events often challenge individuals in ways that cause them to question who they are in relation to others and the world around them. As this questioning takes place, distress often emerges, prompting the use of coping mechanisms to avoid becoming overwhelmed. One means by which this is accomplished is religious coping. Religious coping performs five major functions for individuals who use this form of stress alleviation. These are to discover meaning, to garner control, to acquire comfort through closeness to God, to achieve closeness with others, and to transform life (Pargament, Koenig, & Perez, 2000). Religious coping also serves the ameliorative function of helping distressed individuals to maintain feelings of meaning and

mastery over their situation and experience spiritual connection during stressful times (Xu, 2018).

Religious coping may be classed as positive or negative. Positive religious coping helps individuals to derive meaning from their experience and better understand the nature of the event along with its consequences (Garcia et al., 2017; Shaw et al., 2005). Some positive religious coping strategies include “benevolent religious reappraisals, collaborative religious coping, seeking spiritual support, seeking support from clergy or congregation members, religious helping, active religious surrender, religious purification, seeking spiritual connection, religious forgiveness, seeking religious direction, religious conversion and religious distraction” (Pargament et al., 2004, p. 716; Pargament, Tarakeshwar, Ellison, & Wulff, 2001).

Similarly, negative coping strategies may dominate an individual’s responses to challenging life events. Negative religious coping includes skepticism regarding the existence of God, viewing God as punitive rather than a loving being, and a belief that God allows misfortune to befall good people (García et al., 2017; Shaw et al., 2005). Other negative approaches are: punishing God reappraisal, demonic reappraisal, reappraisal of God’s power, passive religious deferral, self-directing religious coping, spiritual discontent, marking religious boundaries, interpersonal religious discontent, and pleading for direct intercession (Pargament et al., 2004, p. 716; Pargament et al., 2001).

As might be expected, positive religious coping has been consistently associated with positive psychological outcomes (e.g., PTG), while negative religious coping is associated with negative mental health sequelae. For instance, in a study which examined the impact of religious coping, social support, and subjective severity on PTG in people who lost their homes following

the Chilean earthquake in 2010 and who now live in transitional shelters, positive religious coping was found to be positively associated with the development of PTG (García et al., 2010).

Another study by García et al. (2017) examined the relationship between positive and negative religious coping and PTG. Specifically, the researchers recruited 211 adult females who had been exposed to a traumatic event to participate in the study. The results suggested that negative religious coping was strongly linked to an increase in posttraumatic stress, while positive religious coping was associated with an increase in PTG. The study also indicated that low scores of positive religious coping were associated with social support as a means of coping, and high scores of PTG were related to a lower use of social support coping (García et al., 2017). This suggested that in instances where high levels of social support are available, the tendency to engage in religious coping may diminish.

Ochu, Davis, Magyar-Russell, Aten, and O'Grady (2018) also assessed the link between positive religious coping and PTG. In their study, religious coping, dispositional forgiveness, and posttraumatic outcomes (posttraumatic stress and growth) among adult survivors of the Liberian Civil War (1989–2003) was examined. After controlling for sociodemographic factors, positive religious coping was found to be positively related to perceived PTG.

One explanation for the contribution made by positive religious coping to PTG appears to be the propensity to engage in deliberate rumination in relation to the traumatic event. Conversely, negative religious coping may be related to the tendency to engage in more intrusive forms of cognitive processing. Evidence supporting the mediating influence of deliberate rumination on the relationship between religious coping and PTG was found in a study conducted by Bosson, Kelley, and Jones (2012). In this study, the relationship between religious coping and PTG when mediated by deliberate rumination was assessed. Eighty-five adult

females who experienced Hurricane Katrina made up the study sample. Findings demonstrated that the relationship between religious coping and PTG was completely mediated by deliberate rumination.

Loss of Resources and Posttraumatic Stress Symptoms

The loss of resources following natural disasters often results in the manifestation of highly distressing stress reactions in the affected individuals. Loss of resources may be conceptualized as destruction of resources, including objects, personal attributes, conditions, or energies that are valued by an individual. For many, the threat of loss of resources, the actual loss of resources, or the failure to reacquire resources following natural disasters and other traumatic losses is a daunting reality (Hobfoll, 1989).

A growing body of literature has established the link between loss of resources and posttraumatic stress symptoms. One study by Freedy, Shaw, Jarrel, and Masters (1992) assessed survivors of Hurricane Hugo eight weeks following the storm. Four hundred and nineteen participants participated in the research. The study's hypotheses included that "resource loss was positively related to psychological distress; resource loss was relatively more important in predicting psychological distress than personal characteristics and coping behavior; and, resource loss constitutes a risk factor for the development of clinically significant psychological distress" (Freedy et al., 1992, p. 441). The study provided evidence supporting the three hypotheses, suggesting a clear association between loss of resources and psychological distress.

Further empirical backing for the emergence of negative psychological outcomes following resource loss was provided by Sattler, Claramita, and Muskavage (2018); Sattler et al. (2006, 2014); and Shing, Jayawickreme, & Waugh, (2016). These studies have consistently

demonstrated that resource loss is positively correlated to stress outcomes, which may then provide the context for PTG to develop.

Gaps in the extant literature. A handful of studies have failed to replicate findings obtained in previous research establishing a link between traumatic events and positive psychological outcomes. In these instances, results have provided unclear or provisional associations, suggesting a need for additional research. In a meta-analysis of benefit-finding and growth conducted by Helgeson et al., (2006), for example, 87 cross-sectional studies reporting results in 77 articles demonstrated that while benefit-finding was related to less post-event depression and more positive well-being, intrusive and avoidant thoughts about the event were also associated with positive psychological outcomes. This finding stands in stark contrast to prior findings that suggested that automatic intrusive ruminations were associated with a higher prevalence of posttraumatic stress symptoms.

Another study yielded mixed results regarding the relationship between intrusive rumination and PTG. Taku et al. (2009) explored the association between rumination used in the aftermath of adverse life events and PTG utilizing hierarchical regression statistics. Four types of rumination were specifically examined: intrusive rumination soon after the event, recent intrusive rumination, deliberate rumination soon after the event, and recent deliberate rumination. The participants were 224 Americans and 431 Japanese. The findings from the study suggested that intrusive rumination soon after the event was positively related to PTG, although recent deliberate rumination was the stronger predictor of the PTG levels for both samples of participants. One possible explanation for the intrusive rumination-PTG link in this case could be that the trauma survivors engaged in intrusive rumination before progressing to deliberate rumination, which in turn incited the PTG process.

Last, prior studies of PTG have been conducted extensively in Western, Asian, and European cultures (Splevins et al., 2010), with no known study being attempted in the Caribbean region, including The Bahamas. This was confirmed by a literature search which was conducted using EBSCO Host, PsycINFO, PILOT, and Google Scholar databases with the key terms *PTG*, *posttraumatic growth*, *posttraumatic growth in the Bahamas*, and *posttraumatic growth in the Caribbean*. The current study, then, provides some insight on the trajectory of PTG in a Caribbean/Bahamian culture in the context of resource loss due to a hurricane, as well as the moderating role played by religious coping.

Summary

Building on past research on PTG, the current study sought to assess the relationship between loss of resources and PTG when moderated by religious coping in a non-clinical sample from West Grand Bahama in The Bahamas. As indicated in the literature, previous studies have tended to use Western/Eurocentric samples to study PTG, providing little understanding of how PTG develops in the Caribbean, a region with a history of varying intensities of cyclonic activity. Hence, the current study sought to fill this gap in the literature and provide some clue of how PTG develops in a sample of individuals of Caribbean ethnicity.

Tedeschi and Calhoun (2004) conceptualization of PTG Pargament et al.'s (2011) theory of religious coping, and Hobfoll (1989)'s COR theory provided the theoretical foundation on which the research was built. In this vein, the current review commenced with an exploration of PTG, the positive psychological outcomes that develop as individuals struggle to find meaning in the aftermath of traumatic events. Religious coping was construed as the way individuals deal with distressing events within the context of allegiance to a sacred entity. Religious coping may endorse a negative or positive style, and the style of coping used significantly contributes to the

type of outcomes (negative or positive) that may emerge. Conservation of Resources theory underscores the stress trajectory following a threat of loss, an actual loss, or a failure to replenish lost resources. As the literature suggests, loss of resources is regularly associated with poor physical and psychological outcomes.

CHAPTER THREE: METHODS

Overview

In this chapter, the methodology used in this study is outlined. A discussion of the research design, questions, and hypotheses that guided the research and the study's independent and dependent variables are provided. The independent (predictor) variable and moderator variables in the study were loss of resources and positive and negative religious coping, respectively. The dependent (outcome) study variable is PTG. Next, a discussion of the research procedures that were used in the study is provided. This subsection will also delineate the sample selection, instrumentation, and the statistical analyses that were used in the research.

Research Design

After obtaining approval from the relevant Institutional Review Board, convenience sampling was used to select the research participants. Convenience sampling is frequently used in psychology, education, and medicine, and refers to a sample that is not selected randomly from a population. The participants are readily available to the researcher and are thus selected and used in the research (Warner, 2013). The participants for this study were recruited from residents of the West Grand Bahama community. This area was hardest hit during Hurricane Matthew and provided a rich context in which to conduct the current study.

The present study utilized a cross-sectional research design. Cross-sectional studies are used extensively to determine prevalence or the number of cases of a phenomenon in a population at a particular period (Bowden, 2011; Mann, 2003; Pandis, 2014). Cross-sectional research designs are especially useful for facilitating an understanding of relationships between research variables at a fixed point in time (Bowden, 2011).

Research Questions

Two research questions with three sub-questions were used to guide this research. They are given below.

RQ1: Is there a statistically significant relationship between resource loss and the PTG of West Grand Bahamians affected by Hurricane Matthew?

RQ2: While controlling for demographic and employment variables, how, if at all, do resource loss and positive and negative religious coping predict the PTG of West Grand Bahamians affected by Hurricane Matthew?

RQ2a: What demographic and employment variables predict the PTG of West Grand Bahamians impacted by Hurricane Matthew?

RQ2b: How does resource loss predict the PTG of West Grand Bahamians affected by Hurricane Matthew?

RQ2c: How does positive and negative religious coping predict the PTG West Grand Bahamians affected by Hurricane Matthew?

Hypotheses

H_{a1}: Resource loss will share a statistically significant relationship with the PTG of West Grand Bahamians impacted by Hurricane Matthew.

H_{a2}: While controlling for demographic and employment variables, resource loss and positive and negative religious coping will predict the PTG of West Grand Bahamians impacted by Hurricane Matthew.

H_{a2a}: Demographic and employment variables will predict the PTG of West Grand Bahamians who experienced losses in Hurricane Matthew.

H_{a2b}: Loss of resources will predict the PTG of West Grand Bahamians who experienced Hurricane Matthew.

H_{a2c}: Positive and negative religious coping will predict the PTG of West Grand Bahamians who experienced Hurricane Matthew.

Participants and Setting

The participants for this study were drawn from a nonclinical convenience sample of West Grand Bahamians who experienced significant losses during Hurricane Matthew. Three hundred and sixty-one participants completed the survey. Seven cases were discarded, as the participants indicated that they did not reside in West Grand Bahama when Hurricane Matthew made landfall on the island. It is probable that this exclusion criterion was missed by the research assistants during the data gathering process; hence, these seven participants were inadvertently included in the data collection.

Consequently, 354 cases were analyzed. The majority of individuals reported being very or extremely stressed by Hurricane Matthew ($n = 255, 72.1\%$; see Table 1), and a little more than a third of the participants reported that they continued to experience emotional distress consequential of the hurricane ($n = 134, 37.1\%$; see Table 1). One hundred and eighty-eight (53.1%) were male, and 166 (46.9%) were female. Ages of participants ranged from 18 to over 60, with the most participants being between the ages of 18 and 30 ($n = 93, 26.3\%$; see Table 1). All but one participant, who reported being Caucasian (0.3%), were Black ($n = 353, 99.7\%$). The majority of the participants were also single ($n = 138, 39\%$) or married ($n = 105, 29.7\%$), with some form of employment ($n = 224, 63.3\%$; see Table 1 for type of employment and annual income).

Sample Size Determination

Previous studies of PTG (e.g., Andrades, Felipe García, & Martínez-Arias, 2018; Hannah, Stockton, Hunt, & Joseph, 2011) have tended to use a 5% confidence interval (margin of error) with a confidence level of 95% in order to obtain results that were statistically significant. Likewise, for the current study, the margin of error was set at $\pm 5\%$ (0.05). The confidence level that was used is 95% ($z = 1.96$), and it was estimated that 50% of the study's participants would experience PTG following Hurricane Matthew. This figure was selected based on findings from past research on PTG. These studies (e.g., Carter et al., 2017; Lowe et al., 2018; Schneider et al., 2018; Taku et al., 2015) have consistently suggested that about half of the participants across a range of traumatic contexts, including natural disasters, experienced PTG as a result of their exposure to traumatic events.

Cochran's formula was used to calculate the minimum sample size in the study.

Cochran's sample size formula for categorical data for an alpha level a priori at .05 (error of 5%) is:

$$n = \frac{z^2 pq}{e^2}$$

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}$$

$$n = \frac{3.84 \times 0.5 \times 0.5}{0.0025}$$

$$n = 384$$

Where n_0 is the sample size, and z is the value for the selected alpha level, in this instance, 1.96 for a 95 percent confidence level, p is the estimated proportion of an attribute (PTG) that is present in the population, and $q = 1 - p$. $(p)(q)$ is the estimate of variance, the acceptable margin of error for proportion being estimated is e^2 .

Cochran's correction formula for a finite population is used when the size of the population from which the sample is being drawn is known. In the current study, the population of West Grand Bahama is 12,725 (Bahamas Department of Statistics, 2010). Cochran's correction formula is:

$$\begin{aligned}
 n &= \frac{n}{(1+n/N)} \\
 &= \frac{384}{(1+384/12,725)} \\
 &= \frac{384}{1+0.03017682} \\
 &= \frac{384}{1.03017682} \\
 &= 373
 \end{aligned}$$

The population size (N) is 12,725, and n (the required return sample size according to Cochran's formula) is 384; hence, for the current study a minimum of 373 participants was required to yield results that are statistically significant.

West Grand Bahama. Grand Bahama Island is the most northerly of the stepping-stone islands which almost form a land bridge between Florida and Venezuela. The island takes its name from the Spanish term *Gran Bajamar*, which translates *the great shallows* (Barratt, 1982). Grand Bahama is the fourth largest island of The Bahamas and lies about 55 miles from Florida on the opposite side of the Florida channel. The island is 530 square miles and spans 70 miles from east to west.

The western communities of Grand Bahama, the locale from which the study's sample was drawn, comprises a chain of settlements beginning with Hepburn Town and ending with the West End community. The villages' flat geography and proximity to the northern shore of the

island increase their exposure and vulnerability to hurricane phenomenon (Barratt, 1982). The region is predominantly inhabited by Afro-Bahamians of Turks Island descent who migrated to the island in the 1940s and 1950s to work in the lumber mills. The residents are highly religious and hold membership in the various religious denominations (for example, Baptist, Pentecostal, Anglican, and Catholic) present in the area.

Instrumentation

Demographic Questionnaire

Demographic information on the participants was collected using a demographic questionnaire (see Appendix D). Participants were asked to report the following: age, biological sex, race, nationality, religious demographics (such as denomination, frequency of attendance at worship services, the importance of religion), level of education, and employment status. They also provided a self-report rating of the nature of the losses experienced as a result of the storm (e.g., minimal, moderate, significant).

Post Traumatic Growth Inventory

Participants' posttraumatic growth was measured using the PTGI (Tedeschi & Calhoun, 1996). The PTGI consists of 21 items. Participants rate the degree of change they experienced in each area on a six-point Likert scale ranging from zero ("I did not experience this change as a result of my crisis") to five ("I experienced this change to a very great degree as a result of my crisis"). The measure yields a total score in addition to five subscale scores: New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life. The scale demonstrated excellent internal consistency ($\alpha = 0.99$) and acceptable test-retest ($r = 0.71$) reliability (Tedeschi & Calhoun, 1996). The PTGI is available in the public domain, and no permission for use is required if the measure is being used for research purposes.

The Brief Religious Coping Scale (RCOPE)

Data about participants' religious coping were collected using the Brief RCOPE. The Brief RCOPE is a 16-item measure of religious coping with major life stressors. It is a measure commonly used to assess positive and negative religious coping and has contributed to the literature on the mediating role played by religion in distressing situations. Positive religious coping strategies encompass reconceptualizing a stressor salutogenic, conceiving God as a collaborator in the event, and allowing oneself to experience God's love. This approach denotes a secure relationship with God, a sense of connection with others, and a benevolent worldview (Pargament et al., 2011; Rosmarin et al., 2011; Xu, 2018). Negative religious coping strategies are indicated by viewing a traumatic event as punitive, taking a supplicant rather than an active approach to seeking God's help with resolving the issue, or attempting to cope with the situation by depending on one's own effort. The use of these strategies typically indicates a discordant relationship with God, as well as intrapersonal and interpersonal tensions (Rosmarin et al., 2011). Both positive and negative religious coping scales have demonstrated good internal consistency across a range of samples, albeit primarily Christian and American samples. In the current study, the median alpha for the positive religious coping scale was 0.97, and the median alpha reported for the negative religious coping scale was 0.89. Concurrent validity suggests that the positive religious coping subscales are associated with psychological, physical, and social well-being, while the negative religious coping scale is associated with psychopathology (Pargament et al., 2011).

The Loss of Resources Scale

The Loss of Resources Scale is a modified version of the COR-E based on Hobfoll's (1989) model of stress. It was adapted from a 52-item scale used by Freedy et al. (1992) in their

study of Hurricane Hugo. The current version consists of 42 items that measure the amount of material and experiential resources and was used by Steffen (1998) in his research for the completion of his doctoral dissertation. Items are scored using a five-point Likert scale ranging from zero (no loss) to four (an extreme amount of loss). The Cronbach's alpha for the scale for the current study was .956.

Procedures

Following approval by the relevant Institutional Review Board, participants were recruited from a convenience sample of adults who resided in West Grand Bahama at the time of Hurricane Matthew. Advertisement and recruitment strategies included announcements at local church and community events using a letter of recruitment (See Appendix B) and word of mouth. Two research assistants who currently reside in the area as well as at the time the storm made landfall assisted with these efforts. One of the assistants holds a bachelor's degree in psychology, and the other in social work. Additionally, prior to collecting the data, the assistants participated in a three-hour seminar designed to increase their understanding of and comfort level with administering the research instruments. A brief review of psychotic symptoms/manifestations was also presented during the seminar. This was intended to sensitize the research assistants to potential mental illness presentations during the data collection. Subsequently, a door-to-door approach was used to disseminate the surveys and collect the data. This approach entailed the researchers going from home to home on foot or by car and was intended to increase research participation. Moreover, this strategy was chosen because it afforded a deeper level of interaction with the participants and allowed potential misunderstandings related to the content of the questionnaires to be readily addressed.

Inclusion criteria for the current study required that participants self-report as being 18 years or older at the time of the storm, belonging to the Christian faith, experiencing losses as a result of the storm, being a resident of West Grand Bahama, and displaying no visible indication (e.g., psychotic symptoms) of a mental illness. Participants were excluded from the study if they had a visible cognitive impairment, were a nonresident of West Grand Bahama, or belonged to a non-Christian faith.

After Institutional Review Board approval was granted, participants received a questionnaire packet with a letter of introduction, informed consent, and research instruments. Participants were informed that by signing the informed consent document, they agreed to participate in the study, as well as of their right to discontinue their participation in the study at any time if they chose. They were administered the demographic questionnaire, RCOPE, PTGI, and LOR. The participants were not compensated for their participation in this study.

Data Analysis

As previously mentioned, the dependent/criterion variable in the current study was PTG. The independent/predictor variable was loss of resources, and the moderator variable was religious coping (positive and negative) and demographic and employment variables.

For this study, the collected data were analyzed using the current version of the Statistical Package of Social Sciences. Descriptive statistics were first calculated to provide data about the characteristics of the sample, including information on sex, educational level, religiosity, race and ethnicity, marital status, household income, and religious affiliations.

Correlational Analyses

The associations between resource loss and religious coping styles, and resource loss and PTG was examined using Pearson's r correlation. This measure of correlation was used to

provide information about the strength of the linear relationship between two quantitative variables. Scores for this analysis usually range from -1.00 to +1.00 (Warner, 2013). The use of the Pearson's r statistic was preferred in this study because it provided more precise information about the relationship between loss of resources and PTG, positive religious coping and PTG, and negative religious coping and PTG. It should be noted that the Spearman's ρ was also considered during the correlational analyses and provided results that were similar to the Pearson's r correlation.

Hierarchical Regressions

The ability of the demographics, employment, resource loss, and positive and negative religious coping variables to predict the PTG of the study participants was examined using several hierarchical regression models. Specifically, three models were examined. The first regression model contained the demographic (i.e., sex, age, marital status) and employment variables (i.e., financial/annual income, employment status). The second regression model included the addition of the resource loss variable. The third regression model included the addition of the positive and negative religious coping variable.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this study was to examine the extent to which demographic and employment variables, loss of resources, and religious coping predict the PTG of West Grand Bahamians who experienced losses during Hurricane Matthew. Correlation and multiple regression analyses were used to examine relationships between and among the variables. Presented in this section are the descriptive statistics, validity and reliability of the instruments, and results of these analyses with conclusions about the hypotheses.

Participants

Three hundred and sixty-one participants completed the survey. Seven responses were deleted as the participants were not eligible for the study as they indicated that they did not live in The Bahamas at the time Hurricane Matthew made landfall. Consequently, 354 responses were analyzed. The ages of participants ranged from 18 to over 60. The majority of individuals also reported being very or extremely stressed by Hurricane Matthew ($n = 255, 72.1\%$), and a little more than a third of the participants reported that they continued to experience emotional distress consequential of the hurricane ($n = 134, 37.1\%$). See Table 1 for full demographics.

Table 1

Demographics of Research Participants (N = 354)

Characteristic	<i>n</i>	%
Gender		
Male	188	53.1
Female	166	46.9
Age		
18–30	93	26.3
31–40	73	20.6
41–50	70	19.8
51–60	65	17.8
Over 60	55	15.5
Racial/ethnic background		
Black	353	99.7
Caucasian	1	0.3
Religious denomination		
Catholic	82	23.2
Anglican	41	11.6
Baptist	90	25.4
Methodist	31	8.8
Other	110	31.1
Marital status		
Married	105	29.7
Single	138	39.0
Divorced	23	6.5
Widowed	34	9.6
Other	54	15.3
Employment status		
Full time	123	34.7
Part time	28	7.9
Self-employed	73	20.6
Unemployed	130	36.7
Annual income		
< \$10,000	100	28.2
\$10,001–\$20,000	87	24.6
\$20,001–\$30,000	117	33.1
\$30,001–\$40,000	46	13.0
\$40,001–\$50,000	4	1.1
Stress		
Not stressful	38	10.7
Slightly stressful	13	3.7
Moderately stressful	48	13.6
Very stressful	191	54.0
Extremely stressful	64	18.1

Emotional consequences		
Yes	47	13.3
Somewhat	87	24.6
No	220	62.1

Descriptive Statistics and Reliability of Instruments

Table 2 contains the descriptive statistics for all the instruments used to measure loss of resources, religious coping, and PTG, and the participant section contains the descriptive information for demographic and employment variables, including the dummy coded variables of sex (male = 0, female = 1), marital status (0 = single, 1 = married or had been married-divorced or widowed; employment (0 = unemployed, 1 = employment of some type); and annual income.

Table 2

Descriptive Statistics (N = 354)

Variable	<i>M</i>	<i>SD</i>
Loss of Resources	45.90	27.34
Posttraumatic growth	69.49	27.68
Positive religious coping	13.45	5.78
Negative religious coping	3.68	3.70

The pairwise correlation coefficients, including Pearson's r , Spearman's ρ , and point-biserial correlations, for associations between the dependent variables are reported in Table 3. Most of the pairwise association are statistically significant with effect sizes being small to moderate, considering Cohen's (1992) conventions.

Table 3

Two-Tailed Correlation Matrix with all Variables (N = 354)

	1	2	3	4	5	6	7	8	9
1. Posttraumatic growth	-	.350**	.839**	.060	.162**	.189**	.312**	.414**	.403**
2. Loss of resources	-	-	.389**	.245**	.075	.259**	.226**	.216**	.231**
3. Positive religious coping	-	-	-	.025	.175**	.128*	.339**	.479**	.345**
4. Negative religious coping	-	-	-	-	.090	.147**	.059	.054	.095
5. Employment	-	-	-	-	-	.052	.177**	.177**	-.457**
6. Marital status	-	-	-	-	-	-	.050	-.293**	-.067
7. Sex	-	-	-	-	-	-	-	.210**	.050
8. Age	-	-	-	-	-	-	-	-	.369**
9. Financial	-	-	-	-	-	-	-	-	-

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

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

A Cronbach's alpha coefficient, a common measure of internal consistency, was calculated for the sample population to assess the reliability of each measure used in the analyses. Cronbach's alpha was an appropriate choice as it is commonly used with Likert-type scale survey questions to determine if the scales are reliable (Rubin & Babbie, 2011). The resource loss variable was measured using the Loss of Resource Scale (Freedy et al., 1992), and the Cronbach's alpha coefficient of .956 demonstrated that the instrument had good reliability with the sample. The PTG variable was measured using the PTGI (Tedeschi & Calhoun, 1996); it also had good reliability in this study (Cronbach's alpha coefficient = .99). Positive and negative religious coping were measured using the RCOPE scale (Pargament et al., 2011); both scales had good reliability (positive religious coping Cronbach's alpha coefficient = .97; negative religious coping Cronbach's alpha coefficient = .89). All instruments were considered reliable (See Table 2 for the descriptive statistics for the scales used in the analyses).

Research Question One

The Pearson product-moment correlation was used to determine the strength and direction of a linear relationship between the two variables, resource loss and PTG, in individuals in West Grand Bahama affected by Hurricane Matthew. Research question one was, “Is there a statistically significant relationship between resource loss and the PTG of West Grand Bahamians affected by Hurricane Matthew?” Here, it was hypothesized that loss of resources and PTG would share a statistically significant relationship. This hypothesis was supported in the study.

Assumptions Testing for Research Question One

Prior to performing the analysis, three data assumptions related to Pearson’s r correlations were tested. These were linearity, lack of extreme outliers, and normality. Data were also evaluated for missing variables, and no missing data were found. Linearity between the two variables was assessed by inspecting a scatterplot. On a scatterplot, a linear relationship is established if a straight line is approximately formed between the data points on the graph and a curve does not appear in the data. A visual inspection of the scatterplot demonstrated that the assumption of linearity was met in the study (see Figure 1).

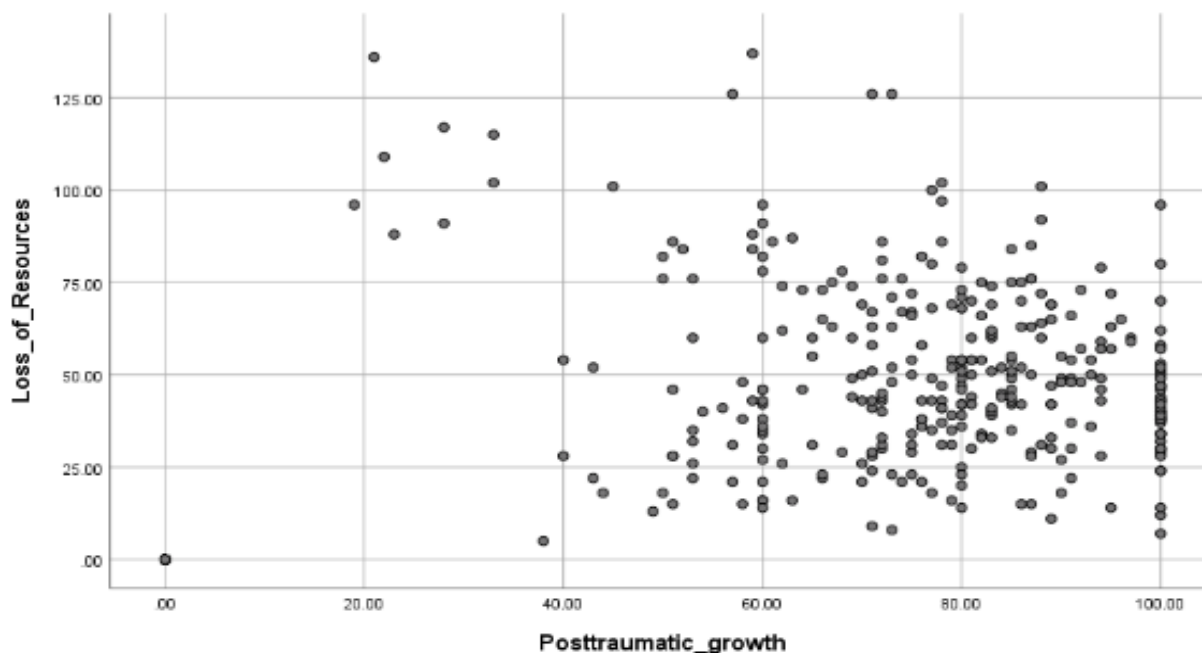


Figure 1. Scatterplot.

Testing for outliers was conducted. To determine whether there were univariate outliers in the data, boxplots were prepared and examined. Data points more than 1.5 box lengths from the edge of their box are classified as outliers. These data points are illustrated as circular dots and labelled with their case number in the boxplots. Any data points more than three box lengths away from the edge of their box are classified as extreme points (or extreme outliers) and are illustrated as an asterisk (*) with their case number labelled. In the data, several univariate outliers were present. However, there were no univariate extreme outliers in the data set (see Figure 2). The correlation analysis was run with and without the outlier, and there was no appreciable difference in the results. Therefore, as the outliers did not affect the results, the decision made was to keep the outliers as the cases represented participants' responses and no data entry errors appeared.

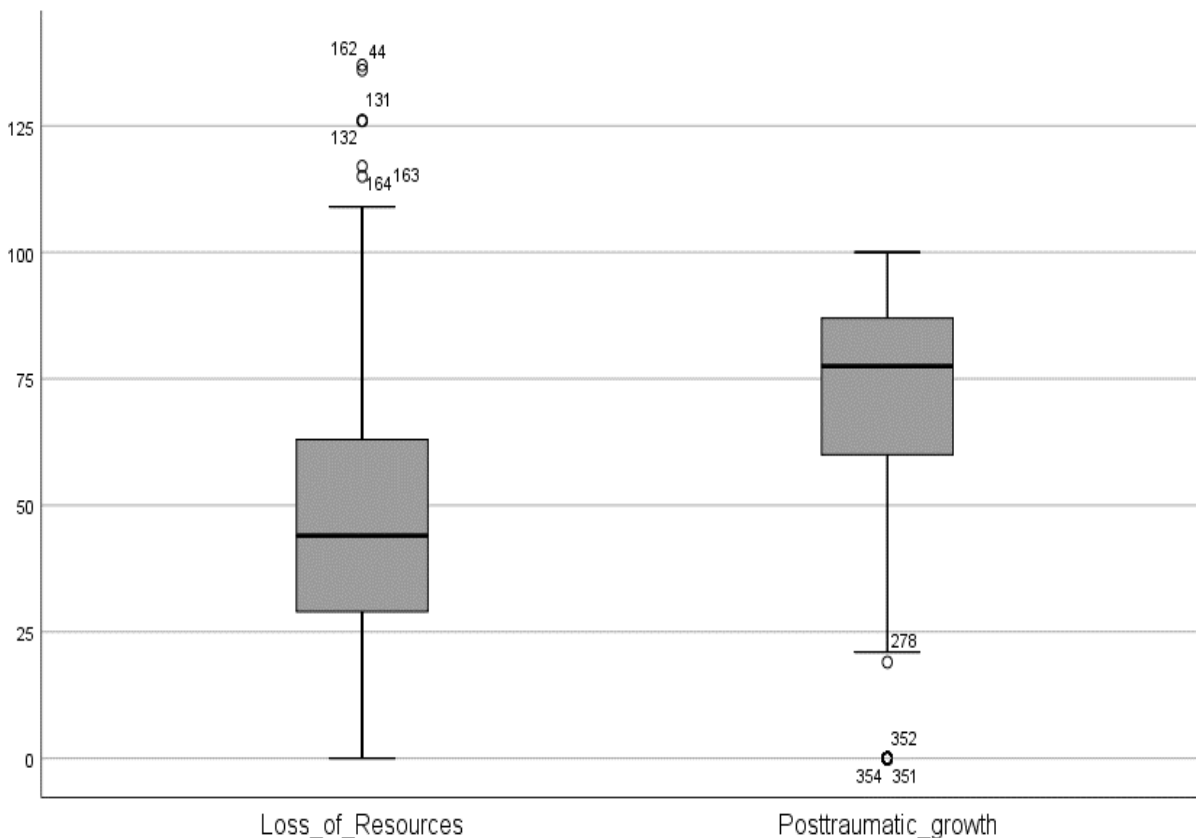


Figure 2. Boxplot.

The assumption of normality was tested using the Kolmogorov-Smirnov test ($p < .05$), and the analysis revealed that neither the resource loss nor PTG variables were normally distributed. As Pearson's correlation analysis is somewhat robust to deviations from normality (Tabachnick & Fidell, 2007), the researcher continued with the analysis and reported the results for the nonparametric correlation analysis.

Analysis

The results of the Pearson correlation analysis were statically significant. A small to moderate, positive correlation was found between the resource loss and PTG of individuals in West Grand Bahama affected by Hurricane Matthew, $r(353) = .35, p < .001$. In other words, as participants' loss of resources increased, their PTG also increased. The results of the Spearman's

rank-order correlation analysis were also considered given the violations in the assumption testing. The results were similar to the Pearson's correlation analysis and were also statically significant. That is, a significant, positive correlation was found between the resource loss and PTG of individuals in West Grand Bahama affected by Hurricane Matthew, $\rho(353) = .213, p < .001$.

Research Question Two

A hierarchal multiple regression was conducted to examine the null hypothesis: Resource loss and positive and negative religious coping do not statistically predict the PTG of individuals in West Grand Bahama affected by Hurricane Matthew, while considering demographics and employment variables. Null sub-hypotheses 2a, 2b, and 2c were also examined. Sub-hypothesis 2a stated that demographics and employment variables do not statistically predict the PTG of West Grand Bahamians affected by Hurricane Matthew. Sub-hypothesis 2b stated that resource loss does not statistically predict the PTG of West Grand Bahamians affected by Hurricane Matthew. And sub-hypothesis 2c stated that positive and negative religious coping do not statistically predict the PTG of West Grand Bahamians affected by Hurricane Matthew. Table 2 (see above) contains the descriptive statistics for all the variables analyzed/measured using validated instruments, and the Participants section contains the descriptive information for the demographic and employment variables. Table 3 (see above) is a correlation matrix showing the association among the variables in the analysis. The matrix demonstrates that all of the predictor/independent variables are associated with the dependent/criterion variable, PTG. Most of the pairwise associations were statistically significant, with effect sizes being small to moderate, considering Cohen's (1992) conventions. Negative religious coping and PTG were

not significantly associated, and PTG and positive religious coping were strongly, positively associated.

Assumption Testing for Research Question Number Two and Sub-Questions

Prior to conducting the hierarchical multiple regression, assumption testing was conducted for independence of observation, linearity, homoscedasticity, multicollinearity, lack of significant outliers, and normality. The Durbin-Watson statistic of 1.751 reveals that there was independence of residuals. This indicates that the assumption of independence of observations is tenable, as the value is close to 2. Additionally, an inspection of the scatterplot demonstrated no gross violations of the assumption of linearity or assumption of homoscedasticity. Tolerance values greater than 0.1 (the lowest is 0.500) and variance inflation factor values greater than 10 (highest is 2.001) for the data indicate that the assumption of multicollinearity is not violated. While examination of casewise diagnostics indicated four extreme outliers (cases 17, 71, 224, 336), Cook's distance values for the cases did not exceed 1 (Cook & Weisberg, 1982). Moreover, all of the leverage values were less than .2. The data were examined, and there was no evidence of a data entry error. As the data points were scores of an actual individual and the Cook's distance value coupled with the leverage values did not indicate the cases as problematic, the decision was made to retain the cases for the analysis. Last, an examination of a histogram with a superimposed normal curve and a P-P plot demonstrated no gross violations of the assumption of normality. As assumptions for a hierarchical multiple regression were not violated, the hierarchical multiple regression was deemed appropriate to examine the data and test the null hypotheses (see Table 4).

Table 4

Summary of Assumption Testing

Assumption	Assessment	Result	Decision
Independence of observations	Durbin-Watson	Durbin-Watson value of 1.751	No gross violations
Linearity	Scatterplot of the studentized residuals against the (unstandardized) predicted values and partial regression plots	Horizontal bands and clusters of data points; no curve	No gross violations
Homoscedasticity	Scatterplot of the studentized residuals against the (unstandardized) predicted values	Somewhat of a horizontal band can be put around the data points on the graph	No gross violations
Multicollinearity is not an issue	Tolerance and VIF values	All tolerance values exceed .1; no VIF values exceed 10	No gross violations
No significant outliers	Casewise diagnostics, Leverage values, and Cook's Distance	4 outliers were identified but none exceeded 1 Cook's distance or a leverage value had less than .2	No gross violations
Normality	Histogram with superimposed normal curve and P-P Plot	Some skewness in histogram but residuals on P-P Plot are fairly closely aligned along the diagonal line	No gross violations

Analysis

Within the analysis, three models were examined. The first regression model contained the demographic (i.e., sex, age, marital status) and employment variables (i.e., annual income, employment status). The second regression model included the addition of the variable loss of resources. The third regression model included the addition of the variable positive and negative religious coping.

Model one did statistically significant predict PTG, $R^2 = .432$ (adjusted $R^2 = .424$), $F(5,348) = 52.886$, $p < .001$. There was significant evidence to reject the null hypothesis (2a) and conclude that the combination of demographic variables and employment variables

significantly contribute to the explanation of the variance in the PTG of individuals in West Grand Bahamians affected by Hurricane Matthew.

Model two, containing the addition of loss of resources, also significantly predicts PTG, $R^2 = .437$ (adjusted $R^2 = .427$), $F(6,347) = 44.906$, $p < .001$. This model, which consists of the demographic and employment variables as well as the loss of resource variable, explains 42.7% (.427 X 100) of the variability of the criterion/dependent variable, the PTG of individuals in West Grand Bahama affected by Hurricane Matthew.

The addition of the loss of resource variable to the prediction model for the PTG of West Grand Bahamians affected by Hurricane Matthew did not, however, lead to a statistically significant increase, R^2 change of .005, $F(1, 347) = 3.276$, $p = .071$. The variance explained by the dependent variable, PTG, only increased by 0.5% with the addition of the loss of resource variable. There was not significant evidence to reject the null hypothesis (2b). The conclusion could be made that the loss of resource variable did not significantly predict variation in the PTG of West Grand Bahamians affected by Hurricane Matthew.

Next, the addition of positive and negative religious coping variables contribute to the explanation of the variance in PTG, R^2 change of .304, $F(2,345) = 201.975$, $p < .001$. The variance explained by the criterion/dependent variable, PTG, increased by 30.4% when these variables were added. There was significant evidence to reject the null hypothesis (2c). The conclusion could be made that positive and negative religious coping, with positive religious coping being the stronger predictor, significantly contributed to the prediction of PTG of individuals in West Grand Bahama affected by Hurricane Matthew.

Moreover, the final model (Model 3) containing all the variables significantly predicted PTG, $R^2 = .741$ (adjusted $R^2 = .735$), $F(8,345) = 123.187$, $p < .001$. In other words, the model,

which consists of demographic and employment variables, loss of resources, and positive and negative religious coping, explains 73.51 % (.735 X 100) of the variability of the criterion/dependent variable, PTG. The null hypothesis, that resource loss and positive and negative religious coping do not statistically predict the PTG of individuals in West Grand Bahama affected by Hurricane Matthew, while considering demographics and employment variables, is rejected.

In the final model, four variables (marital status, employment, financial situation or annual income and positive religious coping) made individual significant contributions. This suggests that individuals in West Grand Bahama affected by Hurricane Matthew were more likely to have higher PTG if they were married or had been married (compared to single) and employed (compared to unemployed). Additionally, as individuals' positive religious coping and annual earnings increased, their PTG increased. None of the other variables made significant contributions (See Table 5).

Table 5

Contributions of Each Variable

Variable	Zero-Order <i>r</i>	Partial <i>r</i>	β	SE B	B	<i>t</i>	<i>p</i>
Sex	.312	.061	1.864	1.640	.034	1.136	.257
Age	.414	-.018	-0.239	0.726	-.012	-0.330	.742
Marital status	.189	.177	5.992	1.799	.106	3.332*	.001
Employment	.162	.193	7.525	2.063	.131	3.647*	.000
Financial	.403	.301	5.951	1.014	.228	5.868*	.000
Loss of resources	.350	-.047	-0.028	0.032	-.028	-0.866	.387
Positive religious coping	.839	.730	3.495	0.176	.729	19.852	.000
Negative religious coping	.060	-.002	-0.008	0.217	-.001	-0.035	.972

p* < .05*p* < .01**Summary**

In summary, demographic and employment variables, loss of resources, and religious coping predict the PTG of West Grand Bahamians who experienced Hurricane Matthew. While

resource loss and PTG have a small, significant association with one another per the correlation analysis, when added to a larger regression model, loss of resource does not significantly predict PTG. Table 6 summarizes the results for the questions and corresponding hypotheses.

Table 6

Summary of Findings

Null Hypothesis	Decision about the Null	Conclusion
HO1. Resource loss and the PTG of individuals in West Grand Bahamas affected by Hurricane Matthew are not significantly associated.	Reject, $r(353) = .35$, $p < .001$; $\rho(353) = .213$, $p < .001$.	Resource loss and PTG of individuals are significantly associated, with the effect size being small.
HO2. Resource loss and positive and negative religious coping do not statistically predict the PTG of individuals in West Grand Bahama affected by Hurricane Matthew, while considering demographics and employment variables.	Reject, $R^2 = .741$ (adjusted $R^2 = .735$), $F(8,345) = 123.187$, $p < .001$ (Model 3)	The entire model containing all the variables significantly predicts PTG.
Ho2a. Demographics and employment variables do not statistically predict the PTG of West Grand Bahamians affected by Hurricane Matthew.	Reject, $R^2 = .432$ (adjusted $R^2 = .424$), $F(5,348) = 52.886$, $p < .001$ (Model 1)	The demographics and employment variables significantly contribute to explanation of the variance in PTG of West Grand Bahamians affected by Hurricane Matthew.
Ho2b. Resource loss does not statistically predict the PTG of individuals in West Grand Bahama affected by Hurricane Matthew.	Fail to reject, R^2 change of $.005$, $F(1, 347) = 3.276$, $p = .071$	Resource loss does not significantly contribute to the explanation of the variance in PTG of individuals in West Grand Bahama affected by Hurricane Matthew.
Ho2c. Positive and negative religious coping do not statistically predict the PTG of West Grand Bahamians affected by Hurricane Matthew.	Reject, R^2 change of $.304$, $F(2,345) = 201.975$, $p < .001$	Positive and negative religious coping statistically predict the PTG of individuals in West Grand Bahama affected by Hurricane Matthew.

CHAPTER FIVE: CONCLUSIONS

Overview

This section presents a discussion of the findings of the research as well as some implications for the counseling field. The study's limitations along with recommendations for future research are also provided.

Discussion

The purpose of the current study was to examine how religious coping contributes to the PTG of a nonclinical sample of West Grand Bahamians who experienced losses during Hurricane Matthew in 2016. There is a burgeoning body of evidence that suggests that experiencing natural disasters frequently results in resource loss, stress responses, and declines in physical and mental health, for example, PTSD, anxiety, and depression. Numerous studies also suggest that these contexts provide opportunities for positive psychological experiences, such as posttraumatic growth, to emerge. As well, the association between PTG and resource loss is well documented in the growth literature although it has been demonstrated that in most of these instances a mediating or moderating factor (e.g., positive religious coping strategies) helped to explain the variations in the PTG variable. Such studies have frequently relied on samples from White, Eurocentric populations, providing little understanding about the relationship between resource loss and PTG in populations from the Caribbean region, and how individuals from this region potentially utilize religious coping to deal with the trauma arising from a disaster. In light of this, the present study sought to contribute to the existing literature by providing some insight into how resource loss, religious coping, demographics and employment variables, and PTG interact in a post-disaster context in a sample of individuals of Caribbean origin.

Research Question One

The first research question in the present study was, “Is there a statistically significant relationship between resource loss and the PTG of West Grand Bahamians affected by Hurricane Matthew?” It was hypothesized that resource loss and the PTG of individuals in West Grand Bahama affected by Hurricane Matthew would be significantly associated. This hypothesis was supported, although only a small to moderate, positive association was found between the loss of resources and PTG variables (Pearson correlation coefficient of $r = .350$). It should be noted that despite the small, significant association, when added to a larger hierarchical multiple regression model, loss of resources alone did not significantly predict the PTG of West Grand Bahamians. This finding is in keeping with the existing literature, which has demonstrated that resource loss is more often correlated with posttraumatic stress symptoms rather than PTG. This finding is also supported by COR theory, which predicts that negative stress reactions results when individuals experience a loss of resources or are confronted with a threat of loss of resources. COR theory posits that in these instances, efforts are undertaken by the individual to reduce stress by replacing the lost resources and attempting to prevent further losses (Hobfoll, 1989).

Several explanations may help to explicate the positive association between resource loss and PTG. One possible explanation is that in the weeks following Hurricane Matthew, West Grand Bahamians likely utilized problem-focused coping, and this coping style in turn moderated the relationship between the two variables. Problem-focused coping is often used following disasters and refers to the focused efforts taken by an individual to change or manage a stressful situation. These efforts generally result in a greater feeling of control over the distressing circumstances and have been linked with an enhanced level of psychological functioning (García, Cova, Rincón, Vázquez, & Páez, 2016)

Alternatively, the impacted individuals could have experienced an enhanced sense of coherence following the storm. Sense of coherence refers to an approach to dealing with critical incidents where individuals view the event as predictable and understandable and believe that they possess the attributes needed to meet the demands generated by the stressful event (Antonovsky, 1987). They believe that positive results are likely to occur if available resources are channeled to meet these demands and take effort to create conditions conducive to facilitating the anticipated positive life outcomes (Antonovsky, 1987).

Research Question Two

The second question that guided the current research was, “While controlling for demographic and employment variables, how, if at all, do resource loss and positive and negative religious coping predict the PTG of West Grand Bahamians affected by Hurricane Matthew?” This overarching question was subdivided into three sub-questions. The first sub-question asked, “What demographic and employment variables predict the PTG of West Grand Bahamians impacted by Hurricane Matthew?” It was hypothesized that demographic and employment variables would predict the PTG of West Grand Bahamians who had experienced losses during Hurricane Matthew. This hypothesis was supported because findings demonstrated that demographics and employment variables significantly contributed to the explanation of the variance in the PTG of individuals in West Grand Bahama affected by Hurricane Matthew. More specifically, individuals in West Grand Bahama affected by Hurricane Matthew were more likely to report higher PTG if they were employed (compared to unemployed) or married (compared to single). This finding is consistent with prior research (e.g., Augustine, 2014) which demonstrates that employment is a valuable resource for fostering PTG or that stable employment and job security create ideal conditions for PTG to emerge. Possibly, in the wake of

Hurricane Matthew, West Grand Bahamians with more extensive socioeconomic resources made attempts to protect and build their existing resources to bring about higher positive change and growth, consistent with a major facet of COR theory (Hobfoll, 1989). COR theory argues that individuals' ability to replace lost resources is likely to result in the creation of gain caravans. Resource gain caravans are created when resources gained in one area initiate gains in other key life domains (Hobfoll, 1989). Grand Bahamians who were employed before and after the storm were perhaps better suited to create gain caravans. This in turn resulted in improved psychological functioning and contributed to the experience of PTG.

There is a scarcity of studies documenting the role played by marital status in helping to predict PTG. One study by Augustine (2014) presented findings on family structure and reported PTG. This study examined the positive effects of trauma exposure among 301 adult survivors of the 2004 Indian Ocean tsunami. The findings from this study suggested that belonging to a nuclear family (or extended family) was a strong predictor of PTG. Nuclear families typically comprise a married couple and it is probable that the marital component of these relationships could be a contributor to the experience of PTG. This explanation, however, is speculative at best and more research is needed to better understand the role played by marital status (if any) in predicting PTG. Hence, the finding that West Grand Bahamians who are married were more likely to experience PTG is a surprising and unexpected finding with little empirical support.

The second sub-question was, "How does resource loss predict the PTG of West Grand Bahamians affected by Hurricane Matthew?" It was hypothesized that loss of resources would predict the PTG of West Grand Bahamians who experienced Hurricane Matthew. This hypothesis was not supported, and it was demonstrated that resource loss did not significantly

contribute to the explanation of the variance in the PTG of individuals in West Grand Bahama affected by Hurricane Matthew. Again, this finding is in keeping with prior studies that have shown that resource loss was not a strong predictor of PTG but instead, was more commonly associated with posttraumatic stress symptoms. This finding is also supported by COR theory, which proposes that resource loss is a key source of stress that often results in the creation of loss caravans unless further losses are stymied and future threats of loss to resources are reduced. Loss caravans occur when losses in one life domain spur losses in other critical areas. These loss caravans have been commonly linked to posttraumatic stress symptoms and a lower level of psychological functioning in the individuals experiencing resource loss (Hobfoll, 1989).

The third sub-question was, “How does positive and negative religious coping predict the PTG of West Grand Bahamians affected by Hurricane Matthew?” It was hypothesized that positive and negative religious coping would predict the PTG of West Grand Bahamians who experienced Hurricane Matthew. This hypothesis was supported, and it was concluded that positive and negative religious coping statistically predicted the PTG of individuals in West Grand Bahama affected by Hurricane Matthew. Positive religious coping was the stronger predictor of the two coping styles, but both variables combined contributed to the explanation of the variance in PTG, R^2 change of .304, $F(2,345) = 201.975$, $p < .001$, and when added to a larger hierarchical multiple regression model containing demographics, employment, and the loss of resource variables, accounted for over 30% of the variance seen in the dependent variable.

Research demonstrating the use of religion to cope with challenging life events is clearly established in the extant literature. Religious coping may be positive or negative, and consistent with religious coping theory, both styles were used by West Grand Bahamians as they grappled

with the aftermath of Hurricane Matthew and sought to find meaning following the storm. Positive religious coping typically includes seeing God as a collaborator amidst the trauma and indicating a secure God attachment, a healthy sense of connection with others, and a benevolent worldview (Pargament et al., 2011; Xu, 2018). Positive religious coping has been widely linked to enhanced psychological functioning, including the experience of PTG. Individuals endorsing a negative religious coping style generally see God as cruel and punishing. Negative religious coping strategies have been commonly associated with poor psychological functioning, including posttraumatic stress symptoms. Few studies examining the link between negative religious coping and PTG have found strong associations between the two variables, and even then, a mediating or moderating factor helped to explain the association (Pargament et al., 2011). Nonetheless, West Grand Bahamians, in their attempt to cope with the aftermath of Hurricane Matthew, utilized positive as well as negative religious coping strategies, although endorsing a positive religious coping style was the stronger predictor of subsequent PTG.

Implications

The findings from this study have several implications for the counseling field. One finding suggests that positive religious coping is a strong predictor of PTG. This implies that efforts undertaken in the aftermath of natural disasters to promote positive religious coping could likely help to facilitate PTG in clinical and nonclinical samples. Additionally, engaging disaster survivors in efforts to facilitate positive religious coping can help to inform interventions that reframe traumatic losses into positive gains. Clinicians and other mental health personnel working with trauma survivors in The Bahamas can benefit from an understanding of the role played by religious coping in helping individuals to find meaning in traumatic aftermaths.

Subsequently, religion-based techniques can be used, when appropriate, to facilitate and encourage PTG.

Another key finding of this study was that West Grand Bahamians who experienced losses during Hurricane Matthew and were employed were more likely to experience PTG. Therefore, as employment appears to be a significant factor in fostering PTG, interventions aimed at developing the skills and education needed to secure stable employment may prove valuable in post-trauma contexts. Individuals working with post-disaster survivors can advocate for policies that stipulate that governmental entities, relief agencies, and nongovernmental organizations employ local peoples in their rebuilding efforts. This serves the dual purpose of not only providing employment to disaster survivors but also of helping them to resume some sense of normalcy following disasters.

Limitations

There were also a number of limitations to this study. The first pertains to the generalizability of the findings. Although the sample size was relatively large ($N = 354$), convenience sampling was used to select the research participants. Convenience sampling is often used in social research settings, but findings from such studies must be received cautiously due to the nonrandom nature of the sample selection. The sample for the current study was composed primarily of Black West Grand Bahamians with just one Caucasian Bahamian. Consequently, the homogeneity of the sample as it relates to ethnicity further limits the ability to generalize the findings of this study. While the findings of this study provide valuable insight into how West Grand Bahamians respond to a natural disaster and how they potentially use religion to cope post-disaster, more robust results might have been obtained if a larger

composition of Caucasian Bahamians or Grand Bahamians of other Caribbean backgrounds were included in the sample.

Another limitation of the present study was that the research design was cross-sectional. Another design type, such as a longitudinal design, might have generated more rigorous data by allowing baseline data to be compared with more clearly identified changes and attribute cause. Therefore, due to the cross-sectional nature of the research design, no causal claims can be made from the study findings.

Another potential limitation of this study is related to the three-year lapse between the trauma (Hurricane Matthew) and the data collection. This can potentially influence the study's findings and may suggest that the individuals' responses were indicative of long-term coping with stress rather than short-term types of coping. Ideally, it would have been favorable to measure the study variables at multiple points following Hurricane Matthew. This study provides a single sampling of the study variables, which can contribute to a diminished understanding of the relationship between the variables.

Additionally, while retrospective accounts may be ideal for determining positive psychological growth over time, problems stemming from perceptual deficiencies may surface when drawing conclusions, and caution must be exercised during data analysis (Frazier, Tashiro, Berman, Steger, & Long, 2009). This has often resulted in the construct validity of PTG being questioned. As well, this has caused the changes reported by research participants in PTG contexts to be questioned on the basis that these changes may potentially reflect responses to the demand characteristics that may surface by virtue of surviving a traumatic event, rather than actual changes that the individual may experience.

PTG refers to positive psychological changes that emerge from individuals' encounter with distressing life situations. Research has demonstrated that growth may emerge from other types of experiences, for example, a diagnosis of cancer or HIV. Since no PTG measures were administered prior to Hurricane Matthew, it is uncertain whether the storm alone was the principal catalyst leading to the PTG experience or whether other factors played a substantive role. Given this uncertainty, caution must be exercised with making claims regarding the prediction of PTG in the current research context.

Last, the present study utilized a modified version of the COR-E. This version, while providing an overall score for resource loss, does not demarcate the different categories of resources (object, conditions, personal characteristics, and energies) that an individual may experience. The primary consideration for using this version was to increase participants' response rate, as the original version of the instrument is lengthy and time consuming. Hence, while the use of the current version likely increased participants' responses by decreasing the length of time it took to complete the survey, the amendments also resulted in key aspects of the original version being excluded. These adjustments eliminated the full range of the resource loss subscales and decreased the researcher's ability to make narrow claims about the relationship between resource loss and the other study variables.

Recommendations and Future Research

The current study examined the relationship between loss of resources and PTG, taking into account religious coping, in a sample of West Grand Bahamians who experienced Hurricane Matthew in 2016. This study represented the first known undertaking of this nature in The Bahamas as well as the broader Caribbean region. Additionally, while the sample for the current study was relatively large, Caucasian Bahamians and Bahamians of other ethnic origins were

grossly underrepresented. To attain a better understanding of how Bahamians of other racial and ethnic backgrounds cope with losses due to a natural disaster, the type of coping mechanisms they might use, and the post-trauma responses that might be exhibited, future studies need to ensure that other ethnic denominations are more evenly dispersed in their samples.

Additionally, to better understand the trajectory of PTG over time, it is recommended that future studies utilize a longitudinal research design. This will allow researchers to collect and compare baseline data with recently collected data and gain a more comprehensive understanding of PTG predictors.

REFERENCES

- Acierno, R., Ruggiero, K. J., Galea, S., Resnick, H. S., Koenen, K., Roitzsch, J., . . . Kilpatrick, D. G. (2007). Psychological sequelae resulting from the 2004 Florida hurricanes: Implications for postdisaster intervention. *American Journal of Public Health, 97*(Suppl. 1), 16–18. <https://doi.org/10.2105/AJPH.2006.087007>
- Aldwin, C. M. (1994). *Stress, coping, and development: An integrative perspective*. New York, NY: Guilford Press.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Andrades, M., Felipe García, B. E., & Martínez-Arias, R. (2018). Posttraumatic growth in children and adolescents exposed to the 2010 earthquake in Chile and its relationship with rumination and posttraumatic stress symptoms. *Journal of Happiness Studies, 19*, 1505–1517. <https://doi.org/10.1007/s10902-017-9885-7>
- Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*. San Francisco, CA: Jossey-Bass.
- Arcaya, M. C., Lowe, S. R., Asad, A. L., Subramanian, S. V., Waters, M. C., & Rhodes, J. (2017). Association of posttraumatic stress disorder symptoms with migraine and headache after a natural disaster. *Health Psychology, 36*(5), 411–418. <https://doi.org/10.1037/hea0000433>
- Atwoli, L., Ayuku, D., Hogan, J., Koech, J., Vreeman, R. C., Ayaya, S., & Braitstein, P. (2014). Impact of domestic care environment on trauma and posttraumatic stress disorder among orphans in Western Kenya. *PLoS ONE, 9*(3), 1–7. <https://doi.org/10.1371/journal.pone.0089937>

- Augustine, J. (2014). Predictors of posttraumatic growth among adult tsunami survivors: The role of employment, religion, and family attributes. *Journal of Social Service Research, 40*(4), 491–507. <https://doi.org/10.1080/01488376.2014.894368>
- Azizzadeh Forouzi, M., Roudi RashtAbadi, O. S., Heidarzadeh, A., Malkyan, L., & Ghazanfarabadi, M. (2018). Studying the relationship of posttraumatic growth with religious coping and social support among earthquake victims of Bam. *Health in Emergencies & Disasters Quarterly, 4*(1), 55–61. <https://doi.org/10.32598/hdq.4.1.55>
- Bahamas Department of Statistics. (2010). Census of population and housing report. Nassau, N.P.: The Bahamas
- Bellizzi, K. M., & Blank, T. O. (2006). Predicting posttraumatic growth in breast cancer survivors. *Health Psychology, 25*(1), 47–56. <https://doi.org/10.1037/0278-6133.25.1.47>
- Benfer, N., Bardeen, J. R., Cero, I., Kramer, L. B., Whiteman, S. E., Rogers, T. A., ... Weathers, F. W. (2018). Network models of posttraumatic stress symptoms across trauma types. *Journal of Anxiety Disorders, 58*, 70–77. <https://doi.org/10.1016/j.janxdis.2018.07.004>
- Benfield, A. (2017). *Hurricane Matthew event recap report*. Retrieved from <http://thoughtleadership.aonbenfield.com/Documents/20170424-ab-if-hurricane-matthew-recap.pdf>
- Bleich, A., Gelkopf, M., Melamed, Y., & Solomon, Z. (2006). Mental health and resiliency following 44 months of terrorism: a survey of an Israeli national representative sample. *BMC Medicine, 4*(21). <https://doi.org/10.1186/1741-7015-4-21>
- Bosson, J. V., Kelley, M. L., & Jones, G. N. (2012). Deliberate cognitive processing mediates the relation between positive religious coping and posttraumatic growth. *Journal of Loss and Trauma, 17*(5), 439–451. <https://doi.org/10.1080/15325024.2011.650131>

- Bryant, R. A., & Guthrie, R. M. (2005). Maladaptive appraisals as a risk factor for posttraumatic stress. *Psychological Science, 16*(10), 749–752.
- Caldera, T., Palma, L., Penayo, U., & Kullgren, G. (2001). Psychological impact of the hurricane Mitch in Nicaragua in a one-year perspective. *Social Psychiatry and Psychiatric Epidemiology, 36*(3), 108–114. <https://doi.org/10.1007/s001270050298>
- Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2010). The posttraumatic growth model: Sociocultural considerations. In T. Weiss & R. Berger (Eds.), *Posttraumatic growth and culturally competent practice: Lessons learned from around the globe* (pp. 1–14). Hoboken, New Jersey: John Wiley & Sons.
- Calhoun, L. G., & Tedeschi, R. G. (2006). *Handbook of posttraumatic growth*. <https://doi.org/doi:10.4324/9781315805597>
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Kilmer, R. P., Gil-Rivas, V., Vishnevsky, T., & Danhauer, S. C. (2009). The Core Beliefs Inventory: A brief measure of disruption in the assumptive world. *Anxiety, Stress and Coping, 23*(1), 19–34. <https://doi.org/10.1080/10615800802573013>
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Triplett, K. N., Vishnevsky, T., & Lindstrom, C. M. (2011). Assessing posttraumatic cognitive processes: The Event Related Rumination Inventory. *Anxiety, Stress and Coping, 24*(2), 137–156. <https://doi.org/10.1080/10615806.2010.529901>
- Caplan, G. (1964). *Principles of preventive psychology*. New York, NY: Basic Books.
- Capacci, A., & Mangano, S. (2015). Natural disasters. *Cuadernos De Geografía: Revista Colombiana De Geografía, 24*(2), 35–51. <https://doi.org/10.15446/rcdg.v24n2.50206>
- Cerda, M., Paczkowski, M., Galea, S., Nemethy, K., Pean, C., Desvarieux, M. (2013).

- Psychopathology in the aftermath of the Haiti earthquake: A population-based study of posttraumatic stress disorder and major depression. *Depression and Anxiety*, 30(5), 413–424.
- Cheng, Z., Ma, N., Yang, L., Agho, K., Stevens, G., Raphael, B., . . . Yu, X. (2013). Depression and posttraumatic stress disorder in temporary settlement residents 1 year after the Sichuan earthquake. *Asia Pacific Journal of Public Health*, 27(2), NP1962–NP1972. <https://doi.org/10.1177/1010539513485971>
- Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, 1(3), 98–101. <https://doi.org/10.1111/1467-8721.ep10768783>
- Cook, R. D., & Weisberg, S. (1982). *Residuals and influence in regression*. New York, NY: Chapman & Hall.
- Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, 4(1), 5–13.
- Danhauer, S. C., Case, L. D., Tedeschi, R., Russell, G., Vishnevsky, T., Triplett, K., . . . Avis, N. E. (2013). Predictors of posttraumatic growth in women with breast cancer. *Psycho-Oncology*, 22(12), 2676–2683. <https://doi.org/10.1002/pon.3298>
- Dohrenwend, B. S. (1978). Social stress and community psychology. *American Journal of Community Psychology*, 6, 1–15.
- Dursun, P., Steger, M. F., Bentele, C., & Schulenberg, S. E. (2016). Meaning and posttraumatic growth among survivors of the September 2013 Colorado floods. *Journal of Clinical Psychology*, 72(12), 1247–1263. <https://doi.org/10.1002/jclp.22344>.
- Engelkemeyer, S. M., & Marwit, S. J. (2008). Posttraumatic growth in bereaved parents. *Journal of Traumatic Stress*, 21(3), 344–346. <https://doi.org/10.1002/jts.20338>

- Eze, J. E., Ifeagwazi, C. M., & Chukwuorji, J. B. C. (2019). Core beliefs challenge and posttraumatic growth: Mediating role of rumination among internally displaced survivors of terror attacks. *Journal of Happiness Studies, 21*, 659–676.
<https://doi.org/10.1007/s10902-019-00105-x>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., . . . Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine, 14*(4), 245–258.
[https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)
- Finkel, N. J. (1974). Strens and traumas: An attempt at categorization. *American Journal of Community Psychology, 2*(3), 265–273. <https://doi.org/10.1007/bf00880847>
- Frankl, V. E. (1963). *Man's search for meaning*. New York, NY: Pocket Books.
- Frazier, P., Tashiro, T., Berman, M., Steger, M., & Long, J. (2004). Correlates of levels and patterns of positive life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 72*(1), 19–30. <https://doi.org/10.1037/0022-006X.72.1.19>
- Freedly, J. R., Saladin, M. E., Kilpatrick, D. G., Resnick, H. S., & Saunders, B. E. (1994). Understanding acute psychological distress following natural disaster. *Journal of Traumatic Stress, 7*(2), 257–273.
- Freedly, J. R., Shaw, D. L., Jarrel, M. P., & Masters, C. R. (1992). Toward an understanding of the psychological impact of disasters. *Journal of Traumatic Stress, 5*(3), 441–454.
- Friedman, M. (2015). *Posttraumatic and acute stress disorders* (6th ed). Switzerland: Springer.
- Fuller-Thomson, E., Brennenstuhl, S., & Frank, J. (2010). The association between childhood physical abuse and heart disease in adulthood: Findings from a representative community

- sample. *Child Abuse and Neglect*, 34(9), 689–698.
<https://doi.org/10.1016/j.chiabu.2010.02.005>
- García, F. E., Cova, F., Rincón, P., & Vázquez, C. (2015). Trauma or growth after a natural disaster? The mediating role of rumination processes. *European Journal of Psychotraumatology*, 6(1), 26557. <https://doi.org/10.3402/ejpt.v6.26557>
- García, F. E., Cova, F., Rincón, P., Vázquez, C., & Páez, D. (2016). Coping, rumination and posttraumatic growth in people affected by an earthquake. *Psicothema*, 28(1), 59–65.
- García, F. E., Páez, D., Reyes-Reyes, A., & Álvarez, R. (2017). Religious coping as moderator of psychological responses to stressful events: A longitudinal study. *Religions*, 8(4), 62.
<https://doi.org/10.3390/rel8040062>
- García, F. E., Páez-Rovira, D., Zurtia, G. C., Martel, H. N., & Reyes Reyes, A. (2010). Religious coping, social support and subjective severity as predictors of posttraumatic growth in people affected by the earthquake in Chile on 27/2/2010. *Religions*, 5(4), 1132–1145.
<https://doi.org/10.3390/rel5041132>
- Ghafouri, S. F., Ghanbari, S., Fallahzadeh, H., & Shokri, O. (2016). The relation between marital adjustment and posttraumatic growth in infertile couples: The mediatory role of religious coping strategies. *Journal of Reproduction and Infertility*, 17(4), 221–229.
- Harville, E. W., Xiong, X., Smith, B. W., Pridjian, G., Elkind-Hirsch, K., & Buekens, P. (2011). Combined effects of Hurricane Katrina and Hurricane Gustav on the mental health of mothers of small children. *Journal of Psychiatric and Mental Health Nursing*, 18(4), 288–296. <https://doi.org/10.1111/j.1365-2850.2010.01658.x>
- Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). *A meta-analytic review of benefit finding and growth*. <https://doi.org/10.1037/0022-006X.74.5.797>

- Hillaby, J. (2010). 50 years ago nature and man. *Nature*, *467*(7313), 279.
- Hirschel, M. J., & Schulenberg, S. E. (2009). Hurricane Katrina's impact on the Mississippi Gulf Coast: General self-efficacy's relationship to PTSD prevalence and severity. *Psychological Services*, *6*(4), 293–303. <https://doi.org/10.1037/a0017467>
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, *50*(3), 337–421. <https://doi.org/10.1111/1464-0597.00062>
- Hobfoll, S. E., Tracy, M., & Galea, S. (2006). The impact of resource loss and traumatic growth on probable PTSD and depression following terrorist attacks. *Journal of Traumatic Stress*, *19*(6), 867–878. <https://doi.org/10.1002/jts.20166>
- Hollifield, M., Gory, A., Siedjak, J., Nguyen, L., Holmgreen, L., & Hobfoll, S. (2016). The benefit of conserving and gaining resources after trauma: A systematic review. *Journal of Clinical Medicine*, *5*(11), 104. <https://doi.org/10.3390/jcm5110104>
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, *7*(2), 113–136. <https://doi.org/10.1521/soco.1989.7.2.113>
- Joseph, S., & Linley, P. A. (2005). Positive adjustment to threatening events: An organismic valuing theory of growth through trauma. *Review of General Psychology*, *9*, 262–280. <https://doi.org/10.1037/1089-2680.9.3.26>.
- Joseph, S., & Williams, R. (2005). Understanding posttraumatic stress: Theory, reflections, context and future. *Behavioural and Cognitive Psychotherapy*, *33*(4), 423–441.

<https://doi.org/10.1017/S1352465805002328>

- Karanci, A. N., Işikli, S., Aker, A. T., Gül, E. I., Erkan, B. B., Özkol, H., & Güzel, H. Y. (2012). Personality, posttraumatic stress and trauma type: Factors contributing to posttraumatic growth and its domains in a Turkish community sample. *European Journal of Psychotraumatology*, *3*, 17303. <https://doi.org/10.3402/ejpt.v3i0.17303>
- Kashyap, S., & Hussain, D. (2018). Cross-cultural challenges to the construct “posttraumatic growth.” *Journal of Loss and Trauma*, *23*(1), 51–69. <https://doi.org/10.1080/15325024.2017.1422234>
- Kerig, P. K., Chaplo, S. D., Bennett, D. C., & Modrowski, C. A. (2016). “Harm as harm”: Gang membership, perpetration trauma, and posttraumatic stress symptoms among youth in the juvenile justice system. *Criminal Justice and Behavior*, *43*(5), 635–652. <https://doi.org/10.1177/0093854815607307>
- Khanna, S., & Greyson, B. (2015). Near-death experiences and posttraumatic growth. *Journal of Nervous and Mental Disease*, *203*(10), 749–755. <https://doi.org/10.1097/NMD.0000000000000362>
- Lajoie, A., Sprang, G., & McKinney, W. (2010). Long-term effects of Hurricane Katrina on the psychological well-being of evacuees. *Disasters*, *34*(4), 1031–1044.
- Leal-Soto, F., Carmona-Halty, M., & Ferrer-Urbina, R. (2016). Rumination in posttraumatic stress and growth after a natural disaster: A model from northern Chile 2014 earthquakes. *European Journal of Psychotraumatology*, *7*(1), 1–12. <https://doi.org/10.3402/ejpt.v7.31638>

- Leaning, J., & Guha-Sapir, D. (2013). Natural disasters, armed conflict, and public health. *The New England Journal of Medicine*, *369*(19), 1836–1842.
<https://doi.org/10.1056/NEJMra1109877>
- Lee, J. (2011). Pathways from education to depression. *Journal of Cross-Cultural Gerontology*, *26*(2), 121–135.
- Linley, P. A., & Joseph, S. (2004). Positive change processes following trauma and adversity: A review of the empirical literature. *Journal of Traumatic Stress*, *17*(1), 11–22.
- Lowe, S. R., Manove, E. E., & Rhodes, J. E. (2013). Posttraumatic stress and posttraumatic growth among low-income mothers who survived Hurricane Katrina. *Journal of Consulting and Clinical Psychology*, *81*, 877–889.
- Maslow, A. H. (1954). *Motivation and personality*. New York, NY: Harper.
- McGuire, A., Gauthier, J., Anderson, L., Hollingsworth, D., Tracy, M., Galea, S., & Coffey, S. (2018). Social support moderates the effects of natural disaster exposure on depression and post traumatic stress disorder symptoms: Effects for displaced and nondisplaced residents. *Journal of Traumatic Stress*, *31*, 223–233.
- McMillen, C., Howard, M. O., Nower, L., & Chung, S. (2001). Positive by-products of the struggle with chemical dependency. *Journal of Substance Abuse Treatment*, *20*, 69–79.
- Michélsen, H., Therup-Svedenlöf, C., Backheden, M., & Schulman, A. (2017). Posttraumatic growth and depreciation six years after the 2004 tsunami. *European Journal of Psychotraumatology*, *8*(1), 1302691. <https://doi.org/10.1080/20008198.2017.1302691>
- Monson, E., Lonergan, M., Caron, J., & Brunet, A. (2016). Assessing trauma and posttraumatic stress disorder: Single, open-ended question versus list-based inventory. *Psychological Assessment*, *28*(8), 1001–1008. <https://doi.org/10.1037/pas0000223>

- Nalipay, M. J. N., Bernardo, A. B. I., & Mordeno, I. G. (2016). Social complexity beliefs predict posttraumatic growth in survivors of a natural disaster. *Psychological Trauma: Theory, Research, Practice and Policy*, 8(5), 559–567. <https://doi.org/10.1037/tra0000154>
- Neimeyer, R. A. (2001). *Meaning reconstruction and the experience of loss*. Washington, DC: American Psychological Association.
- Norris, F. H., Baker, C. K., Murphy, C. K., & Kaniasty, K. (2005). Social support mobilization and deterioration after Mexico's 1999 flood: Effects of context, gender, and time. *American Journal of Community Psychology*, 36, 15–28.
- Ochu, A. C., Davis, E. B., Magyar-Russell, G., O'Grady, K. A., & Aten, J. D. (2018). Religious coping, dispositional forgiveness, and posttraumatic outcomes in adult survivors of the Liberian civil war. *Spirituality in Clinical Practice*, 5(2), 104–119. <https://doi.org/10.1037/scp0000163>
- O'Leary, V. E., & Ickovics, J. R. (1995). Resilience and thriving in response to challenge: An opportunity for a paradigm shift in women's health. *Women's Health: Research on Gender, Behavior, and Policy*, 1(2), 121–142.
- 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>
- Pargament, K. I. (1997). *The psychology of religion and coping: Theory, research, practice*. New York, NY: Guilford Press.
- Pargament, K. I., & Abu-Raiya, H. (2007). A decade of research on the psychology of religion and coping: Things we assumed and lessons we learned. *Psyke & Logos*, 28, 742–766.
- Pargament, K., Feuille, M., & Burdzy, D. (2011). The Brief RCOPE: Current psychometric

- status of a short measure of religious coping. *Religions*, 2(1), 51–76.
- Pargament, K. I., Koenig, H. G., & Perez, L. (2000). The many methods of religious coping: Initial and validation of the RCOPE. *Journal of Clinical Psychology*, 56, 519–543.
[https://doi.org/10.1002/\(SICI\)1097-4679\(200004\)56:4<519::AID-JCLP6>3.0.CO;2-1](https://doi.org/10.1002/(SICI)1097-4679(200004)56:4<519::AID-JCLP6>3.0.CO;2-1)
- Pargament, K. I., Zinnbauer, B. J., Scott, A. B., Buttler, E. M., Zerowin, J., & Stanik, P. (1998). Red flags and religious coping: Identifying some religious warning signs among people in crisis. *Journal of Clinical Psychology*, 59(12), 1335–1348.
- Park, C. L., Cohen, L., & Murch, R. (1996). Assessment and prediction of stress-related growth. *Journal of Personality*, 64(1), 71–105.
- Park, C. L., Smith, P. H., Lee, S. Y., Mazure, C. M., McKee, S. A., & Hoff, R. (2017). Positive and negative religious/spiritual coping and combat exposure as predictors of posttraumatic stress and perceived growth in Iraq and Afghanistan veterans. *Psychology of Religion and Spirituality*, 9(1), 13–20. <https://doi.org/10.1037/rel10000086>
- Perilla, J. L., Norris, F. H., & Lavizzo, E. A. (2002). Ethnicity, culture, and disaster response: Identifying and explaining. *Journal of Social and Clinical Psychology*, 21(1), 20–45.
- Phelps, L. F., Williams, R. M., Raichle, K. A., Turner, A. P., & Ehde, D. M. (2008). The importance of cognitive processing to adjustment in the 1st year following amputation. *Rehabilitation Psychology*, 53(1), 28–38. <https://doi.org/10.1037/0090-5550.53.1.28>
- Pridham, G., & Magone, J. (1996). Research forum. *South European Society and Politics*, 1(1), 151. <https://doi.org/10.1080/13608749608454723>
- Read, J. P., Colder, C. R., Merrill, J. E., Ouimette, P., White, J., & Swartout, A. (2012). Trauma and posttraumatic stress symptoms predict alcohol and other drug consequence trajectories in the first year of college. *Journal of Consulting and Clinical Psychology*,

- 80(3), 426–439. <https://doi.org/10.1037/a0028210>
- Resnick, S. G., Bond, G. R., & Mueser, K. T. (2003). Trauma and posttraumatic stress disorder in people with schizophrenia. *Journal of Abnormal Psychology, 112*(3), 415–423. <https://doi.org/10.1037/0021-843X.112.3.415>
- Rosellini, A. J., Coffey, S. F., Tracy, M., & Galea, S. (2014). A person-centered analysis of posttraumatic stress disorder symptoms following a natural disaster: Predictors of latent class membership. *Journal of Anxiety Disorders, 28*(1), 16–24. <https://doi.org/10.1016/j.janxdis.2013.11.002>
- Rosmarin, D., Pirutinsky, S., & Pargament, K. (2011). A brief measure of core religious beliefs for use in psychiatric settings. *International Journal of Psychiatry in Medicine, 4*(3), 253–261. <https://doi.org/10.2190/PM.41.3.d>
- Ryff, C. D., & Singer, B. (1998). The role of purpose in life and personal growth in positive human health. In P. T. P. Wong & P. S. Fry (Eds.), *The human quest for meaning: A handbook of psychological research and clinical applications* (pp. 213–235). Mahwah, NJ: Lawrence Erlbaum Associates.
- Rubin, A., & Babbie, E. (2011). *Research methods for social work* (7th ed). Belmont, CA: Brooks/Cole.
- Rzeszutek, M., & Gruszczyńska, E. (2018). Posttraumatic growth among people living with HIV: A systematic review. *Journal of Psychosomatic Research, 114*, 81–91. <https://doi.org/10.1016/j.jpsychores.2018.09.006>
- Sanderson, C. (2013). *Counseling skills for working with trauma: Healing from child sexual abuse, sexual violence and domestic abuse*. Philadelphia, PA: Jessica Kingsley.
- Sattler, D. N. (2006). Family resources, family strains, and stress following the Northridge

earthquake. *Stress, Trauma and Crisis*, 9(3–4), 187–202.

<https://doi.org/10.1080/15434610600854038>

Sattler, D. N., Assanangkornchai, S., Moller, A. M., Kesavatana-Dohrs, W., & Graham, J. M.

(2014). Indian Ocean tsunami: Relationships among posttraumatic stress, posttraumatic growth, resource loss, and coping at 3 and 15 months. *Journal of Trauma and Dissociation*, 15(2), 219–239. <https://doi.org/10.1080/15299732.2014.869144>

Sattler, D., Claramita, M., & Muskavage, B. (2018). Natural disasters in Indonesia: Relationships among posttraumatic stress, resource loss, depression, social support, and posttraumatic growth. *Journal of Loss and Trauma*, 23(5), 351–365.

<https://doi.org/10.1080/15325024.2017.1415740>

Schaefer, F. C., Blazer, D. G., & Koenig, H. G. (2008). Religious and spiritual factors and the consequences of trauma: A review and model of the interrelationship. *Journal of Psychiatry in Medicine*, 38(4), 507–524. <https://doi.org/10.2190/PM.38.4.i>

Schaefer, J. A., & Moos, R. H. (1992). Life crises and personal growth. In B. N. Carpenter (Ed.), *Personal coping: Theory, research and application* (pp. 149–170). Westport, CT: Praeger.

Schneider, S., Rasul, R., Liu, B., Corry, D., Lieberman-Cribbin, W., Watson, A., . . . Schwartz, R. M. (2018). Examining posttraumatic growth and mental health difficulties in the aftermath of hurricane sandy. *Psychological Trauma: Theory, Research, Practice, and Policy*, 11(2), 127–136. <https://doi.org/10.1037/tra0000400>

Schuler, E. R., & Boals, A. (2016). Shattering world assumptions: A prospective view of the impact of adverse events on world assumptions. *Psychological Trauma: Theory, Research, Practice, and Policy*, 8(3), 259–266. <https://doi.org/10.1037/tra0000073>

- Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion and Culture*, 8(1), 1–11.
<https://doi.org/10.1080/1367467032000157981>
- Shing, E. Z., Jayawickreme, E., & Waugh, C. E. (2016). Contextual positive coping as a factor contributing to resilience after disasters. *Journal of Clinical Psychology*, 72(12), 1287–1306. <https://doi.org/10.1002/jclp.22327>
- Shultz, J. M., Cela, T., Marcelin, L. H., Espinola, M., Heitmann, I., Sanchez, C., . . . Rechkemmer, A. (2016). The trauma signature of 2016 Hurricane Matthew and the psychosocial impact on Haiti. *Disaster Health*, 3(4), 121–138.
<https://doi.org/10.1080/21665044.2016.1263538>
- Silver, R. C., Holman, E. A., McIntosh, D. N., Poulin, M., & Gil-Rivas, V. (2002). Nationwide longitudinal study of psychological responses to September 11. *JAMA*, 288(10), 1235–1244. <https://doi.org/10.1001/jama.288.10.1235>
- Splevins, K., Cohen, K., Bowley, J., & Joseph, S. (2010). Theories of posttraumatic growth: Cross-cultural perspectives. *Journal of Loss and Trauma*, 15(3), 259–277.
<https://doi.org/10.1080/15325020903382111>
- Steffen, P. (1998). *Optimism and psychological and physiological wellbeing after a natural disaster* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (UMI No. 9934277)
- Stewart, S. R. (2017). *NHC tropical cyclone report: Hurricane Matthew (AL142016)*. Retrieved from National Hurricane Center website:
http://www.nhc.noaa.gov/data/tcr/AL142016_Matthew.pdf
- Stockton, H., Hunt, N., & Joseph, S. (2011). Cognitive processing, rumination, and posttraumatic

- growth. *Journal of Traumatic Stress*, 24(1), 85–92. <https://doi.org/10.1002/jts.20606>
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Allyn and Bacon.
- Taku, K., Cann, A., Tedeschi, R. G., & Calhoun, L. G. (2009). Intrusive versus deliberate rumination in posttraumatic growth across US and Japanese samples. *Anxiety, Stress and Coping*, 22(2), 129–136. <https://doi.org/10.1080/10615800802317841>
- Taku, K., Cann, A., Tedeschi, R. G., & Calhoun, L. G. (2015). Core beliefs shaken by an earthquake correlate with posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy*, 7(6), 563–569. <https://doi.org/10.1037/tra0000054>
- Taku, K., & McLarnon, M. J. W. (2018). Posttraumatic growth profiles and their relationships with HEXACO personality traits. *Personality and Individual Differences*, 134, 33–42. <https://doi.org/10.1016/j.paid.2018.05.038>
- Tang, B., Liu, X., Liu, Y., Xue, C., & Zhang, L. (2014). A meta-analysis of risk factors for depression in adults and children after natural disasters. *BMC Public Health*, 14(1), 1–12. <https://doi.org/10.1186/1471-2458-14-623>
- Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma & transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9(3), 445–471.
- Tedeschi, R. G., & Calhoun, L. G. (1988, August). *Perceived benefits in coping with physical handicaps*. Paper presented at the meeting of the American Psychological Association, Atlanta, GA.
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and

- empirical evidence. *Psychological Inquiry*, 15(1), 1–18.
https://doi.org/10.1207/s15327965pli1501_01
- Tedeschi, R. G., & McNally, R. J. (2011). Can we facilitate posttraumatic growth in combat veterans? *American Psychologist*, 66(1), 19–24. <https://doi.org/10.1037/a0021896>
- Tedeschi, R. G., Park, C. L., & Calhoun, L. G. (Eds.). (1998). *Posttraumatic growth: Positive changes in the aftermath of crisis*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Thomas, E., & Savoy, S. (2014). Relationships between traumatic events, religious coping style, and posttraumatic outcomes. *Traumatology*, 20(2), 84–90.
<https://doi.org/10.1037/h0099380>
- Valdez, C. E., & Lilly, M. M. (2015). Posttraumatic growth in survivors of intimate partner violence: An assumptive world process. *Journal of Interpersonal Violence*, 30(2), 215–231. <https://doi.org/10.1177/0886260514533154>
- Vanhooren, S., Leijssen, M., & DeZutter, J. (2017). Posttraumatic growth in sex offenders: A pilot study with a mixed method design. *International Journal of Offender Therapy and Comparative Criminology*, 6(2), 171–190. <https://doi.org/10.1177/0306624X15590834>
- Warner, R. M. (2013). *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). City, ST: Sage.
- Xu, B. (2018). Commemorating a difficult disaster: Naturalizing and denaturalizing the 2008 Sichuan earthquake in China. *Memory Studies*, 11(4), 483–497.
<https://doi.org/10.1177/1750698017693669>
- Yalom, I. D. (1980). *Existential psychotherapy*. New York, NY: Basic Books.
- Yalom, I. D., & Lieberman, M. A. (1991). Bereavement and heightened existential awareness. *Psychiatry*, 54(4), 334–345.

Zwahlen, D., Hagenbuch, N., Carley, M. I., Jenewein, J., & Buchi, S. (2010). Posttraumatic growth in cancer patients and partners—Effects of role, gender, and dyad on couples' posttraumatic growth experience. *Psychooncology*, *19*(1), 12–20.

APPENDIX A: Institutional Review Board Approval Letter**LIBERTY UNIVERSITY**
INSTITUTIONAL REVIEW BOARD

September 24, 2019

Andy Nakia Laing

IRB Exemption 3928.092419: Exploring the Relationship between Loss of Resources and

Posttraumatic Growth When Moderated by Religious Coping in West Grand Bahamians Who Experienced Hurricane Matthew in 2016

Dear Andy Nakia Laing,

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

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

(i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

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

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

Sincerely,

G. Michele Baker, MA, CIP

Administrative Chair of Institutional Research

Research Ethics Office

LIBERTY
UNIVERSITY

Liberty University | Training Champions for Christ since 1971

APPENDIX B: Letter of Recruitment**Andy N. Laing**[REDACTED]
The Bahamas

Tel #: [REDACTED]

Email: [REDACTED]

2019

Resident
West Grand Bahama District
Grand Bahama
The Bahamas

Dear Resident:

As a graduate student in the Department of Behavioral Sciences at Liberty University, I am conducting a research as part of the requirements for a Doctor of Education degree in Community Care and Counseling with a concentration in Traumatology. The purpose of my research is to *“explore the relationship between loss of resources and the development of posttraumatic growth when moderated by religious coping in West Grand Bahamian who experienced Hurricane Mathew in 2016.”* I am writing to invite you to participate in my study.

If you are 18 years of age or older, belong to the Christian faith, experienced losses during the storm, are a resident of West Grand Bahama, and clearly understand the English language, and are willing to participate, you will be asked to read the attached informed consent letter, then fill out the questionnaires that are included in the packet. These include a Demographic Questionnaire, the Brief Religious Coping Scale (BRCOPE), the Posttraumatic Growth Inventory (PTGI), and the Conservation of Resources Evaluation (COR-E). It should take approximately twenty-five to thirty minutes for you to complete the process. Your participation will be completely anonymous, and no personal, identifying information will be collected.

A consent document is provided as the first page you will see after opening the packet. This document contains additional information about my research, but you do not need to sign and return it.

Sincerely,

Andy N. Laing
Doctoral Student
Liberty University

APPENDIX C: Consent Form

CONSENT FORM

“Exploring the Relationship between Loss of Resources and Posttraumatic Growth when Moderated by Religious Coping in West Grand Bahamians Affected by Hurricane Mathew in 2016”

Andy N. Laing

Liberty University

Department of Community Care and Counseling/School of Behavioral Sciences

You are invited to be in a research study the posttraumatic growth. This study seeks to increase our understanding of positive changes that West Grand Bahamians experience as they grapple with the aftermath of a devastating hurricane. You were selected as a possible participant because you are eighteen years or older, resided in West Grand Bahama during Hurricane Mathew and experienced significant losses, identify as a Christian, and demonstrate a strong grasp of the English Language. Please read this form and ask any questions you may have before agreeing to be in the study.

Andy Laing, a student in the Community Care and Counseling Department/School of Behavioral Sciences at Liberty University, is conducting this study.

Background Information: The purpose of this study is to explore the relationship between loss of resources and posttraumatic growth when moderated by religious coping in West Grand Bahamians who experienced Hurricane Mathew in 2016.

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Complete the Demographic Questionnaire. This activity should take approximately five minutes.
2. Complete the Religious Coping Questionnaire. This activity should take approximately five minutes.
3. Complete the Posttraumatic Growth Inventory. This activity should take approximately five minutes.
4. Complete the Conservation of Resources Evaluation. This activity should take approximately fifteen minutes.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.”

However, if during the study the researcher becomes aware of your participation in acts of child abuse, child neglect, elder abuse, or your intent to harm self or others, by law the researcher is mandated to report these acts to the relevant authorities.

Benefits:

Participants should not expect to receive a direct benefit from taking part in this study. Benefits to society include a better understanding of the positive psychological changes that West Grand Bahamians may experience following a devastating hurricane.

Compensation: Participants will not receive any compensation for participating in this study.

Confidentiality: The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

All questionnaires collected during this study will be stored in a locked safe and may be used in future presentations. After three years, all questionnaires will be destroyed.

Conflicts of Interest Disclosure: There are no researcher conflicts of interest associated with this study.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or Grand Bahama Health Services. If you decide to participate, you are free not to answer any question or withdraw at any time.

How to Withdraw from the Study:

If you choose to withdraw from the study, inform the researcher that you wish to discontinue your participation before submitting your study materials. Your responses will not be recorded or included in the study.

Contacts and Questions: The researcher conducting this study is Andy Laing. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at [REDACTED] 4244 or [REDACTED]. You may also contact the researcher's faculty chair, Dr. Daniel Marston at [REDACTED].

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

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

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature of Participant

Date:

Signature of Investigator

Date:

APPENDIX D: Demographics Questionnaire

<p>1. Were you living in West Grand Bahama directly affected by Hurricane Mathew when the storm hit? <input type="checkbox"/>₁ Yes <input type="checkbox"/>₂ No</p>	<p>2. Sex: <input type="checkbox"/>₁ Male <input type="checkbox"/>₂ Female</p>
<p>3. Age: <input type="checkbox"/>₀ 18-30 <input type="checkbox"/>₁ 31-40 <input type="checkbox"/>₂ 41-50 <input type="checkbox"/>₃ 51-60 <input type="checkbox"/>₄ Over 60</p>	<p>4. What is your racial or ethnic background? <input type="checkbox"/>₀ Black <input type="checkbox"/>₁ Caucasian <input type="checkbox"/>₂ Asian <input type="checkbox"/>₃ Indian <input type="checkbox"/>₄ Other _____</p>
<p>5. What is your religious denomination? <input type="checkbox"/>₀ Christian - Catholic <input type="checkbox"/>₁ Christian – Anglican <input type="checkbox"/>₂ Christian – Baptist <input type="checkbox"/>₃ Christian – Methodist <input type="checkbox"/>₄ Christian – Other Denomination _____</p>	<p>6. Marital Status: <input type="checkbox"/>₀ Married <input type="checkbox"/>₁ Single <input type="checkbox"/>₂ Divorced <input type="checkbox"/>₃ Widowed <input type="checkbox"/>₄ Other</p>
<p>7. What is your employment status? <input type="checkbox"/>₀ Employed (full time) <input type="checkbox"/>₁ Employed (part-time) <input type="checkbox"/>₂ Self-employed <input type="checkbox"/>₃ Unemployed</p>	<p>8. What is your employment status? <input type="checkbox"/>₀ Employed (full time) <input type="checkbox"/>₁ Employed (part-time) <input type="checkbox"/>₂ Self-employed <input type="checkbox"/>₃ Unemployed</p>
<p>9. Financial Status: Annual Income: <input type="checkbox"/>₀ <10,000 <input type="checkbox"/>₁ 10,001-20,000 <input type="checkbox"/>₂ 20,001-30,000 <input type="checkbox"/>₃ 30,001-40,000 <input type="checkbox"/>₄ 40,001-50,000 <input type="checkbox"/>₅ >50,001</p>	<p>10. How stressful was Hurricane Mathew for you? <input type="checkbox"/>₀ Not stressful <input type="checkbox"/>₁ Slightly stressful <input type="checkbox"/>₂ Moderately stressful <input type="checkbox"/>₃ Very stressful <input type="checkbox"/>₄ Extremely stressful</p>
<p>11. Do you believe that you are still dealing with some negative emotional consequences from Hurricane Mathew? <input type="checkbox"/>₀ Yes <input type="checkbox"/>₁ Somewhat <input type="checkbox"/>₂ No</p>	