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Influence of Distributed Reporting of Terror Violence on Implicit Associations of Individuals

Carter Matherly
Walden University

Walden University

College of Social and Behavioral Sciences

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M. Carter Matherly

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Review Committee
Dr. Charles Diebold, Committee Chairperson, Psychology Faculty
Dr. James Herndon, Committee Member, Psychology Faculty
Dr. Neal McBride, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

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Abstract

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MS, Walden University, 2016

MA, American Public University, 2013

Dissertation Submitted in Partial Fulfillment

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Abstract

Following the 9/11 terror attacks, many Americans experienced some form of habit or mood-altering stress though, most had received their impressions of the violence via distributed media reporting rather than firsthand exposure. Researchers have found that the propagating effects of media broadcasting can exasperate the effects of terror. However, little is known of how reports of terror violence affect group dynamics in geographically distant nations. The purpose of this study, following terror management theory, was to understand if terrorist violence influences cognitive and implicit racial evaluations in a culturally similar, but geographically distant, population. The study's design was a quantitative natural experiment. Time of completing the assessment, either before or after the 2015 Paris Bataclan terror attack, comprised the 2-level independent variable; the dependent variables were the Race Implicit Association Test (IAT) and a cognitive evaluation of racial anxiety. Age and religiosity served as covariates. The target population included White citizen residents of the United States over the age of 18; 263 participants were derived from archival data. Comparisons of raw IAT scores showed an 8% increase in negative implicit racial evaluations following the attack; however, the MANCOVA failed to achieve multivariate significance ($p > .05$). Despite the lack of statistical significance, important details on implicit racial attitudes were uncovered. Results of this study have the potential to foster positive social change by informing individuals on how their implicit associations might be affected following exposure to reports of terrorist violence. Additionally, these findings may guide national security and intelligence professional's development of post-attack response measures and task forces.

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Dedication

This dissertation is dedicated to the love of my life, Becca. If it were not for your continued and selfless support in this endeavor it would have never come to fruition. As much effort, long nights, countless hours spent reading and writing I put into this research I believe you have done just as much (if not more). You have sacrificed our time together and tolerated the long nights on the computer, short phone calls while I was constantly on the road, and endless papers I read to all hours of the night while you were trying to sleep. I cannot thank you enough for being my best friend. Your love, support, and encouragement throughout this journey have been the foundation on which it is all built.

This dissertation is also dedicated to my mother and father, Sara and Grant. I am fully aware that I was not the easiest child to raise. I had, and still have, a strong proclivity to ask "*why?*" for nearly everything. Both of you worked hard to help me learn and understand things that I had difficulty grasping. The sacrifices both of you made to ensure I had every opportunity to excel are greatly appreciated and loved. You taught me to be a self-starter and seek motivation and pride in all things accomplished. This dissertation is more so a testament of your parenting, love, and support than an academic accomplishment.

Acknowledgments

No great endeavor is ever undertaken or survived alone. I would like to acknowledge and thank my committee and their above and beyond efforts and mentorship in completing this undertaking. I am honored and humbled to be able to keep the company of you both, as veterans of the U.S. Air Force, and as your mentee.

Dr. Diebold, my committee chair, from the moment you read my prospectus, you pushed me to continually keep my eyes on the next two steps. Without your leadership and foresight, this might have easily turned into an ABD project. Your professionalism and timely feedback empowered me to continue on this journey while making significant headway even when it seemed insurmountable. It was a pleasure working with and learning from you.

Dr. Herndon, my content expert, I still recall you introducing yourself at my first residency. Your insights through multiple revisions were always on point and motivating. Your desire to seek out and help veterans through this journey meant a lot to me and made all the difference.

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Chapter 1: Introduction to the Study

Introduction

Violence and the threat of death surrounds every living thing each day. Modern advancements in technology speed breaking news across a myriad of devices and mediums (Holman, Garfin, & Silver, 2014; Monfort & Afzali, 2017). With push notifications, likes, shares, tweets, and the countless other mechanisms for distributing information, gruesome reports of violence are available to many individuals around the world within seconds.

The impact of terrorist attacks is no different. Not only are these events deliberately deadly, but they are nondiscriminate in their victimology (Injac & Dojčinovski, 2015). Witnesses exposed to this reporting who share socially identifiable attributes similar to those of the victims have the propensity to self-identify with victims (Sachs, Veysey, & Rivera, 2017).

Terrorist actions, like propaganda, are vehicles intent on conveying a persuasive message. Injac and Dojčinovski (2015) identified the four specific goals of terrorist propaganda which include (a) a vehicle for the promotion of ideas, (b) a recruitment tool, (c) the solicitation of resources, and (d) the undermining of legitimate governance. The message that reaches the general population is one predicated on incompatible lifestyles and the urging to adopt the one deemed appropriate by the hostile group. The not so veiled consequence of noncompliance is a gruesome death at the hands of the attackers.

I designed this study to contribute to the body of knowledge required to fully understand the effects of terrorist violence on society. I analyzed implicit shifts in racial

bias following a terror attack in geographically separate but, socially similar nation. This study contributes to positive social change through its data findings on some of the implicit effects of terrorist violence. Owing to the subconscious nature of implicit attitudes, unless they are made known to the holder, they will never be recognized (Nosek, Banji, & Greenwald, 2002). As a result, terrorism may inspire socially negative consequences that have gone wholly unrecognized or mitigated. This study was designed to understand how terrorist attacks that have occurred across the globe can affect implicit racial attitudes amongst the U.S. population when there is no threat of direct harm from the attack.

This chapter includes an overview of the study including a brief background of the research problem, the purpose of the study, and the theoretical framework on which the study was grounded. In the chapter, I will also present the research question and associated hypothesis and definitions that are important to the research. Lastly, I will discuss the assumptions, scope and delimitations, and delimitations of the study as well as review the implications this study has for positive social change.

Background

On November 13, 2015, France experienced its first major terrorist attack that claimed more than 130 lives (Neiberg, 2017). The attackers employed both suicide vests and firearms as they assaulted several outdoor market places and restaurants, a soccer stadium, and a concert hall. All of these areas were experiencing peak attendance at the time of the attacks. News reports of shootings and bombings were quickly broadcast around the world in a variety of forms. As the final siege was underway at the Paris

Bataclan Concert Hall, many individuals around the world knew that this was another terror attack and were exposed to detailed imagery of the aftermath.

No longer are individuals immune to the events occurring across the globe. The globalization of reporting events in near real time and with what are often vivid and graphic audio and visual representations recorded at the scene capturing the aftermath if not the attack itself has effectively expanded the reach and influence of terrorist actions (West & Lloyd, 2017). It can be difficult for researchers to pinpoint the exact effects of the actual event owing to the propagating effects of media broadcasting (Van de Vyver, Houston, Abrams, & Vasiljevic, 2016). These reports not only amplify the population exposed to the violence; they also amplify the distress, horror, and suffering experienced by the victims. The repetitive and invasive reporting almost literally brings the effects of the attack to the doorstep of the observer.

The effects caused by terrorism are numerous. Such events have been shown to cause psychological harm in the observers (Goodwin, Kaniasty, & Ben-Ezra, 2017; Goodwin, Willson, & Stanley, 2005). A vast number of the psychological injuries seen following attacks are suffered by individuals whose only exposure to the event was through distributed media (Iyer, Webster, Hornsey, & Vannman, 2014). The effects of terror attacks are not only psychologically damaging but have been shown to influence observers' perceptions on both cognitive and implicit levels (Belmi & Pfeffer, 2016; Landau et al., 2004).

Building on the foundational ideas of Ernest Becker, social psychologists Greenberg, Pyszczynski, and Solomon (1986) proposed what is now known as terror

management theory. The theory postulates, in its simplest terms, that humanity has developed coping mechanisms to deal with this debilitating threat of death (Solomon, Greenberg, & Pyszczynski, 1991). These constructs are supported by numerous societal norms, such as religious ideology, and an individual's internalization of them. It is these specific constructs and supporting mechanisms that give meaning to individuals and their lives. Through these constructs, individuals are also able to overcome the psychological threat of death and transcend the constraints of a mortal existence and live eternally through remembrance or a promised afterlife (Solomon et al., 1991).

Attitudes are conceptual mental processes that shape how individuals view and interpret the world in which they live (Gawronski & Bodenhausen, 2006; Nosek, Greenwald, & Banaji, 2007). Generally, these processes aid in the delineation of intergroup perceptions and interactions (Horwitz & Dovidio, 2017). Ongoing research into attitudes and their impacts on intergroup functionality has revealed two distinct processes: those that are conscious or explicit, and those that occur subconsciously or implicitly (Wilson, Lindsey, & Schooler, 2000). The focus of this research was on those attitudes that occur implicitly. Research into implicit attitudes has revealed numerous subconsciously occurring in-group versus out-group evaluations (Baron & Banji, 2006; Craig & Richeson, 2014; Nosek et al., 2002, Sullivan, Jonas, & Jodlbauer, 2012). Following the principles of social identity theory these attitudes offer an appraisal of the deemed outgroup in comparison to the holder's perceived in-group (Horwitz & Dovidio, 2017; Tajfel, 1974).

Researchers have demonstrated how the evaluative power of implicit attitudes influence categorization of numerous social attributes including race, class, age, religion, sexual orientation, social roles, national citizenship and origin (see Cunningham, Nezlek, & Banji, 2004; Horwitz & Dovidio, 2017; Hummert, Garstka, O'Brien, Greenwald, & Mellott, 2002; Nosek et al., 2002). Given the subconscious nature of implicit evaluations, specialized instrumentation is needed to measure such outlooks.

There have been several studies of the psychological effects of terrorist actions on witnesses (e.g., Dewa et al., 2014; Goodwin et al., 2005; Shiloh, Güvenç, & Önkal, 2007; Van de Vyver et al., 2016). Researchers have documented the effects of exposure within populations of the attacked nation, taking into account advanced digital connectivity that speeds realistic and grisly accounts of the violence across the globe in a matter of seconds. As a result of this focused research on populations within attacked nations, little is known, based on my review of the literature, about how the rapid distributed reporting of such violence affects the implicit perspectives of individuals living in different countries.

The subconscious nature of implicit attitudes makes my research even more imperative. Aside from the well-documented cognitive effects that terrorist activity has on observers, the implicit effects hold the potential for insidious antisocial effects if left unaddressed for a period of time. The first step in combating such effects is understanding their development and presence. In conducting this study, I sought to contribute understanding regarding the presence of such effects.

Problem Statement

In the current age of hyper connectivity, actions committed by terrorists spread with extreme ease, often with the aid of media outlets and social networks (Injac & Dojčinovski, 2015; Shiloh et al., 2007). Push notifications and live streaming updates from countless digital sources almost immediately disseminate reports of violence from the originating scene and spread globally in a matter of minutes. This evolution of communication capabilities has given once underground extremist organizations the ability to attain an active presence in the public eye with minimal resources and effort (Arendt, Marquart, & Matthes, 2015; Injac & Dojčinovski, 2015; Iyer, Webster, Hornsey, & Vanman, 2014).

Terrorists intentionally focus the designs of their actions to inflict unimpeded violence on whomever opposes them while also serving as stern warnings to others (Ahmed, 2015). These activities also cause observers to fear the extremist organization, imagining they possess the direct and real ability to negatively affect them. As a result, observers have been shown to alter their daily lives for fear of future attacks that may leave them maimed or killed (Goodwin et al., 2005). The modus operandi favored by terrorists is one that exerts power over others. By inducing a state of fear and anxiety, the terrorist organization has persuaded the observer, even if temporarily, of its ability to exert power over the individual's daily life via violence and the threat of death.

As demonstrated by Arendt et al. (2015), even brief exposure to a visually minimal poster can have a significant effect on an individual's unconscious preferences. Similarly, viewing pictures of terrorists carrying out terror attacks has the demonstrated

ability to elicit cognitive emotions of fear amongst observers (Iyer et al., 2014). Shiloh and colleagues (2007) contributed to the understanding of the influential nature of violent terror attacks, noting their ability to alter individuals' perceptions of threat and, subsequently, modify their routine behaviors.

A tenet of terror management theory is that altered perceptions of threat can evoke thoughts of death and cause both emotional and behavioral reactions (Shiloh et al., 2007). Terror Management Theory defines incidents where individuals are reminded of their inevitable death as a mortality salient condition (Goodwin et al., 2005; Greenberg et al., 1992). Emotional markers for mortality salient conditions include increased fear and anxiety, two hallmark effects of viewing violent terrorist attacks (Goodwin et al., 2005; Greenberg et al., 1992). Terror management theory further suggests that culturally specific mechanisms have been constructed to mitigate the existential fear and anxiety that mark mortality salient conditions (Greenberg, Landau, Kosloff, Soenke, & Solomon, 2015; Greenberg et al., 1986; Nugier et al., 2016). A notable socially constructed mechanism is religion (Goodwin et al., 2017). In addition, age may mitigate the impact of a mortality salient event. Maxfield et al. (2007) found that after mortality-salience induction a group of older adults differed in moral transgression assessments compared to a group of young adults.

Many researchers investigating terror management theory have induced mortality salient conditions in their participants with very little effort (see, Bradley et al., 2012; Dewa, Ireland, & Ireland, 2014; Goodwin et al., 2005; Iyer et al., 2014). Common stimuli include manipulations as simple as short questions, reading stories, or showing pictures

or videos that evoke thoughts of death. Research on terrorism has demonstrated strikingly similar results with participants viewing pictorial, video, textual, and even just recalling exposure to news broadcasts featuring representations of terrorist actions (Goodwin et al., 2005). Terrorist attacks generally kill many of those who are directly exposed to an attack, making the actual survivors minimal in number. As a result, the vast majority of those who witness terror violence are exposed by some form of distributed reporting.

The ability to cause mortality-salience in observers witnessing terror attacks reported through graphic media has been documented in previous research (Iyer et al., 2014). The majority of the individuals exposed to attacks were done so via some form of distributed reporting medium. For example, a very small percentage of Americans experienced the 9/11 World Trade Center attacks firsthand. Research showed that nearly 90% of Americans presented with some form of habit or mood-altering stress related to the events, with 40% of those presenting severe symptoms (Dewa et al., 2014).

In summary, terror management theory is useful for explaining how a terrorist event can induce mortality-salience and how religiosity and age can mitigate mortality-salience under certain conditions. Terrorist events can also induce explicit fear and anxiety towards an out-group. Prior researchers have demonstrated the effects of recalling terrorist events on racial Implicit Association Test (IAT) scores in non-U.S. populations. Yet, no other researchers have multivariately compared the linear composite of implicit association (racial IAT) and explicit association (racial anxiety) scores, controlling for age and religiosity, between groups of U.S. persons who completed the assessments before and after media reports of a terror attack in a foreign western nation.

Purpose of the Study

The purpose of this quantitative research was to compare IAT and racial anxiety scores between groups of U.S. persons who completed the assessments before and after media reports of a terror attack in a foreign western nation. A two-level independent variable consisted of individuals who completed the Racial IAT and race anxiety assessment prior to a terrorist attack and a group who completed the assessment following a terrorist attack. The first dependent variable was the overall IAT score as measured by the Racial IAT instrument. The second dependent variable was a self-reported race anxiety score taken immediately following the administration of the IAT. Covariates for the model included participant age and self-reported religiosity. The IAT is a quantitative instrument designed to measure an individual's implicit preferential associations without triggering an explicit situational appraisal.

Research Question and Hypothesis

I sought to answer the following research question:

RQ1: While controlling for religiosity and age, to what extent does the linear composite of overall IAT scores and racial anxiety scores differ between U.S. residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack?

Null Hypothesis ($H_0 1$): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety scores do not differ between U.S. residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack.

Alternative Hypothesis (H_A1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety differ between U.S. residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack.

Theoretical Foundation

The effect terrorist violence has on individuals has been researched and explained through terror management theory. The theory postulates that when an individual is made aware of his or her own mortality, referenced as a mortality salient condition, such as when viewing violent acts, it can trigger an existential terror of their own inevitable death (Greenberg et al., 2015). Unchecked, existential terror is presumed to be so great that it would consume all other things and eventually destroy the sanity of the holder (Greenberg et al., 1986). To mitigate the all-encompassing nature of existential terror, cultural constructs, such as religion, have been developed that aid the perceiver in his or her conception of death and unify a group of people under a common cultural identity (Goodwin et al., 2017).

The emotional effects of existential terror are explained by terror management theory and have been demonstrated though research where mortality salient conditions have been created in participants by having them view images of terrorists and victims after an attack, write about their own death, or even think about natural disasters (Bradley et al., 2012; Iyer et al., 2014; Rosenblatt et al., 1989; Västfjäll, Peters, & Slovic, 2014). Video, text, photos, and other descriptions of terrorist actions can elicit a similar existential fear in the observer (Richards, 2014). Mortality salient conditions are states

where individuals are reminded of the unavoidability of death. Terror management theory suggests that owing to this lack of control and unavoidable mortality, individuals will demonstrate increased levels of fear and anxiety (Bradley et al., 2012; Iyer et al. 2014; Rosenblatt et al., 1989; Västfjäll et al., 2014). Fear and anxiety have been offered as the lynchpins providing terrorists the ability to influence populations through distant actions despite a lack of legitimate power (Ahmed, 2015). Terror management theory offers a theoretical foundation describing a cause and effect relationship between the conditions of viewing reports on terrorist actions resulting in mortality-salience conditions that influence implicit associations. A detailed discussion of terror management theory and the psychological impacts from mortality-salience and terrorism are presented in Chapter 2.

Nature of the Study

This dissertation was a quantitative natural experiment (Dunning, 2012; Vogt, 1999). I measured the precognitive nature of implicit attitudes (IAT) and cognitive nature of explicit attitudes (racial anxiety). The independent variable distinguishes those who participated in an IAT assessment prior to and after a terrorist attack. The control and experimental conditions of this natural experiment have been facilitated by nature through the passage of time. Although individuals were not randomly assigned to the before and after conditions, IAT assessments take place daily in Project Implicit's Virtual Laboratory (https://www.projectimplicit.net/infrastructure.html). Though individuals self-selected when to take the assessment, they can be considered assigned as-if random by nature if an intervening event did not, itself, affect participation (Dunning, 2012).

The use of archival data offered the unique opportunity to study the impact of terror violence as it occurred over time. The independent variable, before and after attack groups, was carefully determined by the date in which individuals accomplished the assessment. All individuals who took the assessment between the dates of October 30, 2015, and November 12, 2015 were considered part of the before level. Individuals who completed the assessment between the dates of November 14, 2015, and November 27, 2015, were considered part of the after attack level. The date of the actual attack, November 13, 2015, was not analyzed because exposure or not cannot be clearly determined.

The first dependent variable, overall IAT scores, is a score that ranges from -2 to 2. This score conveys the intensity of implicit racial preference. The second dependent variable, racial anxiety, is a self-reported response on a seven point Likert scale from 1 (*no anxiety*) to 7 (*constant anxiety*). Two covariates were also used during the analysis. The first covariate, age, helped control for variations in the intensity of mortality-salience across generational gaps (Maxfield et al., 2007). Age was accounted for in terms of whole years lived to the date when the assessment was completed. Additionally, religiosity served as the second covariate. Religiosity has been shown to have a dampening effect on mortality-salience (Goodwin et al., 2017). This variable was self-reported via a four point Likert scale from 1 (*not at all religious*) to 4 (*strongly religious*).

Definitions

Implicit Association Test: Is a test designed to measure the intensity of an individual's implicit attitude. It is most often employed as a measure of preference for one social group over another, ergo race, sexual identity, age, etc. (Nosek et al., 2002)

Implicit Attitudes: Are automatically occurring subconscious in-group versus out-group evaluations (Nosek et al., 2002).

Implicit Racial Bias: The inclination for an individual to demonstrate racially discriminatory tendencies in an implicit manner (McConnell & Leibold, 2001).

Mortality-salience: Is a condition in which an individual has been made aware of their mortality though some form of death awareness. This awareness can be solicited though naturally occurring environmental conditions or be induced in an experimental setting. Both methods of bringing about mortality-salience have produced identical results (Greenberg et al., 1986).

Overall IAT Score: Dependent variable, score as measured by the Racial IAT instrument presented as a number out to three decimals that generally ranges from *-2* to *2* (Xu et al., 2016).

Participant age: Covariate, assessed by participant self-reported age selection as a whole number to Project Implicit.

Race anxiety: Dependent variable, a self-reported response to a Likert scaled question asking how anxious the participant would be when interacting with a given race. The assessment is taken immediately following the administration of the IAT (Xu et al., 2016).

Religiosity: Covariate, it is a representation of how strongly religion influences the participant's life. It was assessed by participant self-reported response to a Likert scaled question asking the participant to determine their level of religious affiliation, from (1) *'not at all religious'* to (4) *'strongly religious'* (Xu et al., 2016).

Existential Terror: A vivid awareness and encompassing fear about the unavoidable nature of one's own mortality (Greenberg et al., 1986).

Terror Management Theory: Is a social psychology theory of behavior. It postulates that the threat of death is mitigated through the development and adherence to various cultural worldviews that formulate social constructs which give meaning and transcendence to the mortality stricken condition of life (Greenberg et al., 1986)

Terrorism: There is considerable debate on what constitutes terrorism versus civil disobedience. This conversation is outside the scope of this dissertation. For the purposes of this research terrorism is considered to be violent actions taken against a generalized civilian populace with the intent to terrorize and influence the populace's way of life in favor of the attacker's point of view (Nugier et al., 2016).

Terrorist: Just as the concept of terrorism is debated so is who should be considered a terrorist. Again, the specifics of this conversation is outside the scope of this dissertation. This research builds on the above definition of terrorism and considers individuals who engage in the violence of or support to terrorism as terrorists.

Assumptions

This study made and therefore relied on a few assumptions relative to its execution and the information used. First, it was assumed that all participants who are

included in the second level, those who participated following the attack, were aware of the incidents occurring in France and had consumed some form of footage, imagery, audible, or written depiction of the violence. Even though possibility exists that an individual could have accomplished the assessment after the attacks without knowledge of them, it is remote. The IAT used is administered via an online hosting service and therefore requires internet connectivity to access. This same medium of connectivity, the internet, is a significant force in the distribution of global information. Terrorist attacks and in particular the one in question in Paris is no acceptation to this.

A second assumption made for this study, and others, was the incidence of mortality-salience amongst participants. There is no litmus test available to clearly identify when an individual is experiencing existential terror. Previous research has shown that simply thinking of one's potential death (Greenberg et al., 1990) or even recalling news reports of the September 11, 2001, attacks on the World Trade Centers in the United States (Belmi & Pfeffer, 2016; Landau et al., 2004) can bring about mortality-salience. This research followed in the footsteps of Zerhouni, Rougier, & Muller (2016) who demonstrated that even recalling the September 11 attacks could solicit mortality-salience in individuals who had not only ever seen news reports of the attacks but resided on a separate continent. The concept of mortality-salience and suitability to it are discussed in more detail in Chapter 2.

The final assumption this research has made concerns the truthfulness of participants on self-report cognitive measures. This is not an assumption limited to this research, rather it is a concern shared by all researchers who employ cognitive means of

gathering data. One dependent variable and two covariates for this study rely on self-reported assessments. They include race anxiety, participant age, and religiosity. There is little reason that a participant might falsely identify their age or religiosity other than an honest mistake. However, as is covered in Chapter 2 there is precedent for individuals to underreport racist outlooks in cognitive measures. This variable is a self-assessment on how anxious participants feel in the presence of another race. This research followed others before it who have used similar measures and assumed the self-report measures as accurate and truthful representations of the participant's reality.

Scope and Delimitations

The effects of terrorism are a significant concern to the collective global community. The current global campaign against terrorism boasts a coalition of over 61 nations including the North American Treaty Organization whom have committed resources or deploying troops to support the effort (US Central Command, 2017). According to the 2017 World Terrorism Index of the 195 countries in the world only about 30 of them are unaffected by terrorist activity. As terrorists continue to evolve, grow, and commit violent acts against populations as a means to an ends, terrorism will be a grave concern for many.

Even though understanding and combating of terrorism is a global concern and this research provides insight into terrorist effects on an international scale, the direct scope of this research is much more limited in its nature. The dissertation at hand is limited to a finite timeframe encompassing a singular attack and a finite population with unique cultural attributes.

The target population for this study included all Caucasian, United States citizens, over the age of eighteen, who were residing within the United States during the specific timeframes surrounding the Paris Bataclan terror attack. The sample included persons meeting this criteria who had completed the Race IAT examination, relevant demographic, and psychometric measures. Limitations created by archival research and the IAT being available online only has bounded the sample to include persons who completed the assessment for reasons other than this research and have access to a computer with an internet connection.

A sample size of 128 is sufficient for Stevens' (1986) recommendation of at least 20 times as many cases as variables in a canonical correlation. Project implicit reports that approximately 2,355,303 individuals have completed the Race IAT over a period of ten years. Of these, 86.1% were U. S. citizens and 70.2% were White. The time frame of this study spans four weeks, which, on average, indicates approximately 9,955 potential cases. Meaning that the results of this study show potential to be generalizable within the dimensions mentioned above. Specifics on the cases used can be found in chapter 4.

Limitations

This study employed the use of archival data from Project Implicit. Attempting to collect data prior to and following a terror attack would be logistically impossible, largely owing to the unpredictability of terrorist violence. As a result limitations in the data and potential applications of it arise as noted by Frankfort-Nachmias and Nachmias (2008).

One of the principal limitations that arises is applicability of the data to the research conducted. Since the data was originally collected for means other than this

particular study there was no guarantee that it would satisfactorily address the stated research question (Frankfort-Nachmias and Nachmias, 2008). The original dataset however, is not a static set of data collected and used for another research project. It is part of a larger continuous collection of data made freely available to researchers for the expressed purposes of advanced research (Xu et al., 2016). Detailed code books are provided which give insight into the information contained within the dataset. As a result the datasets provided by Project Implicit have been used in countless studies on implicit attitudes.

Very often archival data can be difficult to obtain (Frankfort-Nachmias and Nachmias, 2008). Once the data are located, agreements and usage rights must be discussed and agreed to. This process prevents misuse of the data while insuring the congeniality of the participants. Project Implicit has addressed this difficulty and made the data not only easy to access, but also provides a sanitized version for quick download and use. This sanitized version is free of any potential identifying information including zip codes. The intent is to make it easier and quicker for researchers to access and use the data in meaningful ways (Xu et al., 2016). This study only required access to and use of the sanitized version.

Despite these concerns archival research enjoys a generally strong level of external validity (L'Eplattenier, 2009). This is, in part, due to the fact that the participants are unaware of their role in the current research. This ultimately circumvents the potential for participants to alter their behavior in a manner they perceive will benefit the research or garner favor with the researcher. Furthermore, the stated research seeks to study the

second order effects of terror attacks on implicit and explicit racial attitudes. The data provided by Project Implicit provided excellent dependent measures that fill these requirements.

With most archival studies the most significant threat to internal validity is history (L'Eplattenier, 2009). Owing to the nature of the data having already been collected, it is impossible to control for all the factors that may influence the variables being measured. This threat has been addressed by identifying and then controlling for specific variables known to have significant impact on the dependent variables. As documented throughout chapter two, age and religiosity have been shown to have a strong influence on implicit responses to threat and ultimately mortality-salience (Goodwin et al., 2017; Wrzus, Egloff, & Riediger, 2017, Maxfield, et al., 2007; Nosek et al., 2007). These concerns are discussed in more detail in Chapter 3.

Significance

This study has significance in the scholarly realm by advancing knowledge of the psychological and societal effects of terrorism. Terrorism is a global phenomenon that has far reaching effects across the globe. The magnifying effects of digital media speed reports of seemingly random violence to users in all areas of the world in a matter of seconds. Exposure to terrorist violence is no longer limited to a comparatively small population. Nearly every person in the world now has the potential to be exposed to the violent acts and aftermath of terrorism.

Acts of terror are disseminated very quickly via numerous avenues that often expose large groups of individuals to the violent deeds within hours of their occurrence.

Previous research has demonstrated that representations of terror attacks create mortality salient conditions in individuals (Iyer et al., 2014). This condition has been shown to have a direct influence on an individual's attitudes and behaviors in a variety of ways, including in-group and out-group discrimination, selecting locations to live, and even for whom to vote (Cohen, Ogilvie, Solomon, Greenberg, & Pyszczynski, 2005; Dewa et al., 2014; Greenberg et al., 2015). Goodwin et al. (2005) noted individuals who were fearful of attacks were more likely to reside in suburban rather than urban areas.

Viewing images of terrorists following an attack can generate feelings of fear and anxiety (Ahmed, 2015; Injac, & Dojčinovski, 2015; Shiloh et al., 2007; Iyer et al., 2014). Such studies have focused on the cognitive reactions of exposure to terrorist attacks and largely ignored how viewing these events can affect an individual's precognitive (implicit) perceptions. Through the use of the IAT, terror management theory has demonstrated mortality-salience has a negative effect on implicit associations (Bradley, Kennison, Burke, & Chaney, 2012; Rosenblatt, Greenberg, Solomon, PyszcYnski, & Lyon, 1989). These comparative attitudes include categorical comparison of racial, sexual identity and orientation, age, and gender perceptions (Bradley et al., 2012; Greenberg et al., 1990).

A review of current literature demonstrated little empirical research exploring the effects terrorist attacks on comparative implicit attitudes not directly tied to the attack. More specifically, there was a dearth of research on understanding how terrorist violence effected implicit comparative evaluations of out-group members. This research has focused its efforts specifically on implicit racial evaluations.

This dissertation has not only contributed to the understanding of terror attacks on mortality-salience, but also on how such violence has negatively affected individual's daily interactions through subconscious perceptions. The understanding of how implicit associations are effected by potentially influential messaging has further informed processes associated with the creation of mortality salient conditions. This research has expanded the current understanding of how terrorist actions function as persuasive messaging that targets an individual's world view. Terror management theory has also benefited from a detailed articulation demonstrating a working relationship between the indirect implicit influence of terrorism and racial perceptions. Furthermore, these theoretical underpinnings directly inform practical understanding of how witnessing terrorist actions influence individuals at the most intimate levels.

Implications for Positive Social Change

This study has contributed to positive social change by taking the first steps into understanding the secondary implicit effects of terrorist violence on geographically separated observers. Owing to the sub-conscious nature of implicit attitudes unless they are made known to the holder, they will never be recognized. As a result terrorism may inspire socially negative consequences that have gone wholly unrecognized or mitigated until the conclusion of this study.

The results of this study have shed light on an under-researched area of significant social impact. Reports of terrorist actions not only amplify the population exposed to the violence, they also provide an amplifying focus on the distress, horror, and suffering experienced by the victims. When individuals view the persistent and vivid reporting of

the violence they become more prone to suffering the same psychological distress as those who observed the attack first hand. The repetitive and invasive reporting almost literally bringing the effects of the attack to the doorstep of the observer.

This dissertation takes one of the first looks at the implicit effects of terrorist violence on geographically separated observers. The results presented in this research will better inform and prepare clinicians to aid clients with stress related disorders derived from such events. Additionally, the understanding of how implicit emotions are subsequently influenced by viewing such events lay a groundwork of understanding where individuals, social, and traditional media outlets \have the ability to take proactive steps in insuring available content is minimally invasive. This latter implication offers significant opportunity for positive social change, including being the first step in cognitively de-terrorizing terrorist violence. This latter change does require an active and proactive effort by those re-broadcasting and reporting on such events.

Summary

This chapter provided an introduction of the following research including the background of the research problem, the purpose of the study, and discussion of the theoretical framework on which the study is grounded. This chapter also presented the research question and associated hypothesis and definitions that are important to the research. The chapter also gave perspective on the assumptions, limitations, and scope, as well as a review on the implications for positive social change.

Chapter 2 presents a detailed review of the literature relevant to the research problem introduced in this chapter. The literature review will focus on five major

concepts including, (a) terror management theory, (b) implicit attitudes, (c) the implicit association test, (d) terrorism, and (e) globalization of information. It is followed by Chapter 3 which will discuss the methodology used in the study along with a discussion on the research design and rationale, methodology, data analysis, threats to validity, and ethical considerations and procedures.

Chapter 2: Literature Review

Introduction

The purpose of this study was to compare IAT and racial anxiety scores between groups of U.S. persons who completed the assessments before and after media reports of a terror attack in a foreign western nation. Prior research has demonstrated the effects of recalling terrorist events on the Race-IAT scores in non-U.S. populations (Arendt et al., 2015; Zerhouni et al., 2016). Researchers have further found that, following terrorist attacks, individuals react in a similar manner as those who have been experimentally manipulated with a mortality salient stimuli (Injac & Dojčinovski, 2015; Shiloh et al., 2007).

No longer are individuals immune to events occurring across the world. The globalization of reporting events in near real time and with what are often vivid and graphic audio and visual representations recorded at the scene capturing the aftermath if not the attack itself has effectively expanded the reach and influence of terrorist actions (West & Lloyd, 2017). It can be difficult, however, for researchers to pinpoint the exact effects of the actual terror event because of the propagating effects of media broadcasting (Van de Vyver et al., 2016). These reports not only amplify the population exposed to the violence, they also provide an amplifying focus on the distress, horror, and suffering experienced by the victims.

The effects caused by terrorism are numerous. Such events have been shown to cause psychological harm in the observers (Goodwin et al., 2005, 2017). A vast number of the psychological injuries seen following attacks are suffered by individuals whose

only exposure to the event was through distributed media (Iyer et al., 2014). The effects of terror attacks are not only psychologically damaging; they have been shown to influence an observer's perceptions on both cognitive and implicit levels (Belmi & Pfeffer, 2016; Landau et al., 2004).

Building on the foundational ideas of Ernest Becker, social psychologists Greenberg and associates (1986) proposed what is now known as terror management theory. The theory postulates, in its simplest terms, that humanity has developed coping mechanisms to manage the debilitating threat of death arising from terror-related acts (Solomon et al., 1991). Such mechenisims include numerous societal norms, religious ideology, and are reinforced by an individual's internalization of the hallmarks of each. It is these specific constructs and supporting mechanisms that give meaning to individuals and their lives. Through these constructs individuals are also able to overcome the psychological threat of death, transcend the constraints of a mortal existence, and live eternally through remembrance or a promised afterlife (Solomon et al., 1991).

Attitudes are conceptual mental processes that shape how individuals view and interpret the world in which they live (Nosek et al., 2007; Gawronski & Bodenhausen, 2006). Generally, these processes aid in the delineation of intergroup perceptions and interactions (Horwitz & Dovidio, 2017). Ongoing research into attitudes and their impacts on intergroup functionality has revealed two distinct processes: those that are conscious or explicit and those that occur subconsciously or implicitly (Wilson et al., 2000). The focus of my research was on those attitudes that occur implicitly. Researchers examining implicit attitudes have uncovered numerous subconsciously occurring in-

group versus out-group evaluations. Following the principles of social identity theory, these attitudes offer an appraisal of the deemed outgroup in comparison to the holder's perceived in-group (Horwitz & Dovidio, 2017; Tajfel, 1974). The evaluative power of implicit attitudes has been demonstrated for numerous social roles including race, class, age, religion, sexual orientation, socioeconomic status, national citizenship, and origin (see Cunningham et al., 2004; Horwitz & Dovidio, 2017; Hummert et al., 2002; Nosek et al., 2002).

Given the subconscious nature of implicit evaluations specialized instrumentation is needed to measure such outlooks. The IAT is a computer-based instrument that is designed to measure the implicit comparative strength of associations between objects or concepts. There is an analog paper version of the instrument; however it is reserved for demonstrative purposes and is not used generally as a data gathering instrument. The objects and concepts can be constructed to represent nearly anything; however, most versions of the test are developed around social "isims" or prejudicial relationships. In this research, I used a version of the IAT designed to test an individual's implicit racial preference for White or Black individuals.

In this chapter, I provide an overview of related research on the concepts outlined in this introduction. I will outline and formulate the theoretical backbone upon which the research was based. In the literature review section, I will focus on five major concepts including (a) terror management theory, (b) implicit attitudes, (c) the implicit association test, (d) terrorism, and (e) globalization of information.

Literature Search Strategy

Walden University's digital library was the main source of retrieving research data for this review. On occasion Google Scholar was used to preliminary identify research terms as well as fill in gaps in available literature from Walden's library. Additional research databases used to supplement the search include: PsychINFO, PsychARTICLES, PsychTESTS, SAGE, ProQuest, Research Gate, and Academia.edu. It is important to note that some of the sources provide access to non-scholarly or peer-reviewed research. Search criteria for articles included in the review were research published in peer-reviewed journals, academically based text books and chapters, and seminal research papers. Published dissertations and presentations or notes from conferences were also considered in the review, however used sparingly. This research concentrated its efforts on research published within the past ten years, with a specific focus on the past five years encompassing 2012 to 2017. Seminal and influential research outside of this time frame was given special consideration and presented in the following sections as appropriate.

The following search terms and key words were used individually and in various combinations with BOOLEAN modifiers during the research process: terrorism, terror management theory and TMT, religion, age, implicit attitudes, explicit attitudes, implicit association test and IAT, project implicit, racism, media, propaganda, social media, violence, Paris terror attacks, Bataclan attack, and existential terror.

The articles retrieved during this process were then used as an additional resource in two ways. Firstly, the reference list in each article were used to identify additional

research material for review. Many of the articles retrieved during the review process cited other research that was pertinent to the discussed research problem. These articles were identified and retrieved for review as well. Secondly, the authors of the articles and those identified in the references sections provided an additional source of search criteria. Many of the authors identified have published several articles revolving around central themes, many of which are close to the research discussed herein.

Theoretical Foundation

The underlying theory on which the methodology of this study is founded was first presented in the works of cultural anthropologist Ernest Becker. His seminal work *The Denial of Death* (1973) shed initial light on the socio-cultural constructs that help one to evade death. His work also discussed problems associated with such constructs and the lengths individuals and nation-states will go to preserve their socially constructed illusion of death defeating beliefs.

Greenberg, Pyszcynski, and Solomon (1986) applied Becker's anthropological constructs in the social psychology field, resulting in the creation of terror management theory. At its core the theory provides a means to analyze behaviors associated with realization of the inevitability of death. This existential terror has been mitigated through the application of various cultural worldviews that formulate social constructs which give meaning and transcendence to the mortality stricken condition of life (Greenberg et al., 1986). To better understand how individuals react to salient reminders of death terror management theory has been applied across numerous disciplines. Specifically, researchers have applied terror management theory to terrorist-related events, and have

had significant findings with relation to religion, political perspectives, and security (Das, Bushman, Bezemer, Kerkhof, & Vermeulen, 2009; Pyszczynski, Solomon, & Greenberg, 2015). However, many of these researchers have measured populations who have either been directly exposed to the violence or who live close to it, completely omitting potential effects on culturally similar, but geographically separated countries.

My research sought to understand how individuals are subconsciously affected by reports of terrorist violence. Terror management theory offered the perfect theoretical foundation for understanding the occurrence and impact of mortality-salience on an observer's implicit attitudes. Therefore, this study hypothesized that the linear composite of scores from the IAT and racial anxiety scores did not differ between United States residents who took the assessment just prior to the Paris Bataclan terror attack and a group who took it just after said attack.

Literature Review Related to Key Variables and/or Concepts

Terror Management Theory

Everybody will die one day. This simple statement has the potential to be one of the most profound and terrifying realizations that any single person will ever cope with. This statement is but one, very simple, reminder of the inevitable mortality faced by all persons. Such reminders come in many forms from explicitly profound and invasive assertions to subtle implicitly founded messages that effect observers in ways of which they are cognitively unaware. These forces combined with the realization that one will ultimately die is the foundation of Ernest Becker's existential terror as he proposed it in his book *The Denial of Death* (1973). In Darwinian terms, Becker proposed that

existential terror should trigger a self-preservation reaction so strong that one becomes completely consumed with how to cheat death in the pursuit of immortality (Solomon et al., 1991). All other tasks become inconsequential.

Ernest Becker's foundational ideas inspired social psychologists Greenberg, Pyszczynski, and Solomon (1986) development what is now known as terror management theory. The theory postulates, in its simplest terms, that humanity has developed coping mechanisms to deal with this debilitating threat of death (Solomon et al., 1991). The unique cognitive nature of humans has given birth to worldviews that are founded in cultural constructs. These constructs are supported by numerous societal norms, religious ideology, and individual internalization of them. It is these specific constructs and supporting mechanisms that give meaning to individuals and ultimately their life. Through these constructs individuals are also able to transcend the constraints of a mortal existence and live eternally through remembrance or a promised afterlife (Solomon et al., 1991).

Mortality-salience as a condition is fairly common and extremely simple to induce. Experiments investigating the effects of mortality-salience on individuals have employed a variety of methods including; recollection of a traumatic loss of life, thinking of what might happen once they physically die, or witnessing a video of an autopsy (e.g., Belmi & Pfeffer, 2016; Greenberg et al., 1990). A popular method for inducing mortality-salience has been to ask participants to think of the terrorist attacks that struck the World Trade Centers on 11 September 2001 (e.g., Belmi & Pfeffer, 2016; Landau et al., 2004).

The recognition of death and the construction of cultural ideals to help mitigate the impact of such an event is uniquely human. This uniqueness is attributable to the human cognitive consciousness in which individuals are able to contemplate what may happen once death has occurred (Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000). This capacity also allows the individual to contemplate not only times but ways in which one may perish. There is a dualistic drive within the individual to preserve life but, also the realization that it will one day end. Beliefs of souls, an afterlife, religious edicts, and so on are all constructed around the psychological need for self-preservation that there is something more after biological life ceases (Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992). These defenses echo tenants of psychodynamic theory where symbolic and proximal defense mechanisms function in a manner that reduce the salience and threat of death (Greenberg et al., 2000).

Proximal defenses are those that encompass a distancing effect. They are both the cognitive and implicit rationalizations that govern the individual perception of a threat. This occurs by distancing the eventuality or reality of a threat to one's life (Greenberg et al., 2000; Pyszczynski et al., 2015). In the case of terrorist violence such proximal distancing has been demonstrated in a variety of ways.

However, little research has been dedicated to understanding the implicit effects of terrorist attacks on groups or individuals. The research discussed above all represent both cognitive instrumentation and action as a result of witnessing distributed reporting of terror attacks. Following the Paris Bataclan attacks a few researchers took a closer look at implicit attitudes following such violence.

The crippling impact of existential terror on individuals experiencing mortality-salience will vary due to several contributing factors. When experiencing events that have made mortality salient individuals socially retreat into their self-identified in group and judge how out-groups react to the stimuli. Self-esteem can buffer how strong this retreat and ensuing judgement will be. Current literature proposes two distinct hypothesis governing terror management theory, the anxiety-buffer hypothesis and mortality-salience hypothesis (Burke, Martens, & Faucher, 2010; Pyszczynski et al., 2015; Wisman, & Heflick, 2016). Even though both of these hypotheses can be considered as mutually supportive of the theory, detailed discussion of each is warranted.

Anxiety-buffer hypothesis. The anxiety-buffer hypothesis presents a case that many of the cognitive behaviors and cultural constructs practiced by groups of people have been developed over a longer period of time in order to act as a buffer against existential terror (Greenberg et al., 1992; Pyszczynski et al., 2015). The principal psychological construct that contributes to anxiety-buffering effects is self-esteem (Greenberg et al., 2000; Pyszczynski et al., 2015).

Self-esteem has the ability to buffer death thought access that contributes to existential terror in two distinct ways: (a) by first resorting to the supreme belief that the holder's cultural worldview is truthful in its constructs and (b) affirmation that one is living up to and fulfilling the constructs and expectations that comprise the cultural worldview (Pyszczynski et al., 2015).

Self-esteem is critical as it provides feedback that the cultural constructs one observes provides contextual meaning and purpose to the individual's actions. These

belief driven actions form the basis of an individual's worldview and cultural grounding. The self-esteem of an individual provides validation though social feedback of other likeminded individuals who share a similar world view and share in the same socio-cultural actions.

Self-esteem provides the ability to stave off anxiety related to realizations of death and mortality (Greenberg et al., 2000). Even though when self-esteem is high death thought anxiety remains at minimal levels, the relationship is not purely decisive where self-esteem and death thought anxiety remain and divergent points on a scale. Instances that produce strong reminders of death or cultural confrontation can weaken the impact of self-esteem based on socio-cultural perspectives (Abeyta, Iuhl, &Routledge, 2014; Greenberg et al., 1986).

Self-esteem has enjoyed the most empirical review. Researchers have shown that individuals who exhibit a high self-esteem attributed to their religious beliefs are more likely to have lower death thought related anxiety if their beliefs are held as a form of self-transcendence over self-enhancement (Du et al., 2013; Hui, Chand, Lau, Cheung, & Mok, 2014; Kesebir, 2014). Underscoring this relationship was Greenberg et al. (1992) who found that following positive feedback (albeit false) following an IQ test participants had lower anxiety when exposed to graphic video of postmortem human dissections. However, an individual who holds his or her religion for self-transcendence purposes may be at a lower risk of experiencing death thought anxiety, but may experience a higher incident of prejudice towards outgroups (Greenberg, Landau, Kosloff, Soenke, & Solomon, 2016; Jonas, & Fischer 2006). People are devoted to securing and defending

their self-esteem as a maintenance buffer against death thought anxiety caused by reminders of the threat of death (Pyszczynski et al., 2015). Ultimately, individuals cope with death by becoming more conservative with their cultural outlooks, turning inward to their in-group and seeking out more self-esteem enhancing outlets that were representative of their socio-cultural values (Greenberg et al., 2016; Pyszczynski et al., 2015).

Mortality-salience hypothesis. Mortality-salience plays a central role in terror management theory. When confronted with reminders of death, individuals will evaluate their standing in accordance with their worldviews and values. This reflective outlook compares and contrasts the status of the individual's in-group with notable out-groups. An individual's proximal distance from the self-identified in-group is based on adaptation to the cultural constructs of the group and in turn is directly tied to the observer's self-esteem.

The mortality-salience hypothesis is another protective mechanism, but unlike the anxiety-buffer hypothesis which deals with buffering devices via self-esteem, mortality-salience focuses on commitment to a particular worldview. The core principle argues that reminders of death will cause individuals to enhance their commitment toward their worldview through bolstering actions of defense against other conflicting worldviews and opinions (Pyszczynski et al., 2015; Solomon, Greenberg, & Pyszcynski, 2004).

A review of the literature highlights one of the most simplistic ways mortality-salience can be achieved is by simply asking participants to contemplate their own demise and then write down key aspects of that scenario (e.g. Belmi & Pfeffer, 2016;

Greenberg et al., 1990). In addition to this method researchers investigating terrorism have regularly asked participants to recall images reported of the September 11, 2001, attacks on the World Trade Centers in New York, USA (e.g., Belmi & Pfeffer, 2016; Landau et al., 2004).

Experimental manipulation of mortality-salience in participants has demonstrated increased positive appraisals for like individuals who uphold or appear to be part of the participant's socio-cultural world view while offering negative judgements of those outside that of the participant's in-group (Greenberg et al., 1990; Greenberg et al., 1992; Pyszczynski et al., 2015;). Additionally, participants who are part of groups understood to be in a social minority amplified social praise for stereotypically accepted thoughts – even when they were contradictory to their own minority group (Pyszczynski et al., 1996).

Early empirical contributions to the mortality-salience hypothesis honed in on the facets of cultural worldview as a protective front against death anxiety. Such research highlighted that death reminders contributed to: (a) increased criticality and aggressive evaluations towards others who violated or directly challenged a cultural norm (Greenberg et al., 1992; Niesta, Fritsche, & Jonas, 2008); (b) enhanced appraisals and assessments of those who endorsed cultural norms (McGregor et al., 1998); and (c) even increased judgement with negative outcomes towards culturally agnostic others (Altemeyer & Hunsberger, 1992; Quinton, Cowan, & Watson, 1996).

Current applications and review of the mortality-salience hypothesis have focused on recent societal issues including immigration, terrorism, religion, and race. Individuals

who received mortality salient manipulation in the form of terrorist violence were shown to have harsher appraisals of culturally different immigrants (Landau et al., 2004; Weise, Arciszewski, Verlhiac, Pyszczynski, & Greenberg, 2012). These findings were reinforced to cultural differences when Bassett and Connelly (2011) demonstrated that American participants expressed increased hostility toward in place Mexican immigrants who observed distinctly different cultural norms than illegal, but culturally similar, immigrants from Canada.

Referencing back to the World Trade Center attacks on September 11, 2001, researchers sought to test the mortality-salience hypothesis and subsequent in-group and out-group conflict as a result of world view defense against other cultural beliefs (Moskalenko, Hughes, & Cheney, 2006; Osborn, Johnson, & Fisher, 2006; Pyszczynski, Greenberg, & Solomon, 2003; Yum & Schenck-Hamlin, 2005). Results of these endeavors showed that not only had a significant number of the US population experienced mortality salient conditions, they were more prone to exhibit aggressive tendencies towards others not part of their social group.

Individuals who violate or exhibit agnostic attitudes toward cultural norms and world views experience increased negative appraisals when others experience a mortality salient condition. But, when an individual experiences reaffirming validation of their worldview they are less inclined to negatively appraise individuals with different, but not aggressive, world views with lower death though anxiety following mortality salient manipulations. This has been demonstrated in propensities to purchase items made by cultural out-groups or minorities at higher prices (Sullivan, Jonas, & Jodlbauer, 2012).

Mortality-salience has been shown to have significant impact on an individual's actions and thoughts in defense of his or her world view and cultural norms. When confronted with culturally distinct out-groups while in a mortality salient condition individuals are more likely to appraise the out-group others in a negative and hostile manner, even exhibiting aggressive attitudes and actions towards culturally different others (Greenberg et al., 1992; Moskalenko, Hughes, & Cheney, 2006; Osborn, Johnson, & Fisher, 2006). However, when the individual's worldview is reaffirmed individuals exhibit more tolerant attitudes in the direction of said culturally different others (Sullivan, Jonas, & Jodlbauer, 2012).

Taking into account the anxiety-buffering and mortality-salience functionalities of terror management on individuals, there are key attributes that directly contribute to the relative strength of each effect. There has been considerable research into moderators and mediators of terror management.

Terror management through religion. Religion's influence on mortality-salience and death thought anxiety has been the focus of some empirical research. Religion is often considered the most significant basis for individual world views and offers the grounding constructs on which one can measure their actions against. Belief systems can be viewed as a conglomeration of smaller and simpler beliefs and thoughts that give comfort to the beholder, regardless of status as an organized religion or spiritual belief system, offers the subscriber some form of existential terror mitigation or outlet. Thus, the terms religion and spirituality have been used to characterize faith systems and are not specific to one world view over another (Blazer, 2009). For the discussion on how

these concepts affect an individual's ability to reduce death thought related anxiety and stave off mortality-salience the belief system must offer a solution to the terror and finality of death (Vail et al, 2010).

Both religion and spirituality must provide the beholder the notion of immortality in some form, a belief that they will continue to exist after biological death has occurred (Jonas & Fischer, 2006). This can come in numerous forms, be it a conceptual place of spiritual life such as a preverbal paradise, or reincarnation into another living being, or more ambivalent persistence consciousness. The religious and spirituality systems interact with terror management theory to provide anxiety buffering effects on death thought anxiety in the holder. The function in which religious and spirituality systems function in a terror management perspective is by the construction of a literal afterlife and/or supreme beings or deities in which said afterlife might be obtained (Vail et al., 2010). These all present some form of an afterlife to the follower of the faith. The key is that the belief system has provided the believer a method in which to cheat death, thereby defending against the threat of death thought anxiety (Dechesne et al., 2003). The belief in a literal pathway to immortality is an extremely powerful vaccine to existential terror. This pathway is one exploited by terrorist leaders who recruit individuals to carry out fatal attacks, such as suicide bombings (Cottee & Hayward, 2011).

The symbolic immortality offered by religious and spiritual belief systems is further reinforced by rules and agreements one must follow in order to obtain the reward. Fulfilling these tasks not only guarantees the individual access to the promised afterlife or specifics of immortality, but it also bolsters individual self-esteem as a result of

upholding socially shared cultural standards (Vail et al., 2010) The underlying motivator for achieving immortality remains unchanged from one belief system to another – it is to deny the notion of the totality of annihilation occurring after biological death (Goodwin et al, 2017; Pyszczynski et al, 2015; Vail et al., 2010).

Death reminders have the ability to reinforce the notion of an afterlife and powerful deities in the minds of believers. Mortality-salience can bolster individual desire to commune with a supernatural agent in an attempt to buffer the threat, real or perceived, presented. In one study predominantly Christian participants read three different narratives with an end of life scenario. Each narrative presented an image of an individual communing with God, Buddha, and a Shamanic deity. Participants who identified themselves as religious in any respects showed higher rates of devotion to their own higher power following the narrative and images than a nonreligious participant (Norenzayan & Hansen, 2006). Terror management theory describes the belief in a supernatural agent and unverifiable faith based afterlife as a vital function in terror management. The belief system becomes the gateway between the present and the afterlife in a very key way. Without the structure of an afterlife and pathway to attain entry provided by the religious or spiritual system mortality is finite and fragile with considerable uncertainty (Hui et al., 2014; Pyszczynski et al, 2015).

Closely held religious and spiritual beliefs that offer relief from death through anxiety do not operate in a social vacuum. An increased sense of social belonging and reciprocity of cohesiveness and support are also derived from religious and spiritual belief systems (Maselko et al, 2011). This social support system can provide enhancing

effects on an individual's self-esteem while also reinforcing the importance and validity of the subscribed religious or spiritual belief system (Boyer & Ramble, 2001). The self-esteem derived from the validity of communal action establishes the sense that the belief system is legitimate and the supernatural and post-life benefits promised are legitimate. As a result of the positive self-efficacy the belief system adopted by the individual will influence his or her worldview and self-identity.

As the individual's world view and self-identity are shaped the religious or spiritual belief system becomes a deep seated and pivotal part of the individual's self-concept and associated self-worth. The criticality of the belief system to the individual's world view and identity increase the potential for conflict when faced with non-believing others. The challenge can be presented in many forms from outright hostility towards the holder to an agnostic indifference. Anything short of full acceptance challenges the holder of the beliefs with the implication that the ideology that has formed a critical component central to their individual identity is false (Boyer, 2001).

Social validation from the perspective of religious or secular based worldviews has been noted to have a significant terror management function effectively mitigating death thought related anxiety (Vail et al., 2010). Individuals with supernaturally based belief systems that were notably rigid and inflexible were more likely to foster hostile, intolerant, and even violent reactions towards others with differing belief systems or no belief system at all (Vail et al., 2010). Ultimately, individuals will feel that their belief system is superior and infallible when there are numerous others who can corroborate and provide support to the individual and the belief system. This reinforcement further

supports terror management theory of world view defense. Individuals will reaffirm their socio-cultural standards when faced with conflicting others by condemning, censuring, and even attacking the conflicting beliefs and their holders (Davis, Juhl, & Routledge, 2011).

Religion and spiritual beliefs not only provide centrality and grounding in an individual's world view, they also provide powerful defenses against the threat of biological death. These belief systems are able to overcome the unrelenting terror associated with the finite and frailty of mortal life by offering what is presented as a literal continuation of conscious life in a comparative paradise or promise of improved conditions in the next life. To attain the promises outlined by the belief system the individual must subscribe to the system as a whole and as a result becomes part of a social support network. This network not only enhances the individual's self-esteem but, also validates the legitimacy of the belief system. Unfortunately, owing to the centrality of the belief system and its ties to mitigating extensile terror challenges to it will solicit interpersonal conflict. Terror management theory defines this conflict as a world view defense and the reaction can vary from outright rejection of the alternative beliefs to discrediting them and even violent attacks against it or the holder.

Terror management through age. As individuals grow older the threat of death becomes closer. Often individuals experience a midlife crises when they realize that their mortal existence has passed a half way point and act out in what is often non-characteristic ways. In the context of terror management, as individuals age so does their worldview perspective. This developmental transition has been hypothesized as a turning

point in evaluative methods that contribute toward how an individual apprises given situations (Maxfield, Pyszczynski, Greenberg, & Bultmann, 2017).

It seems logical that as one ages, susceptibility towards worldview defense would be heightened by reminders of death. But, empirical evidence suggests the opposite to be true. Older individuals have been shown to report a lower fear and greater acceptance of death than younger counterparts (Cicirelli, 2003; Henrie & Patrick, 2014;). As a result older individuals will likely not respond in similar ways to mortality salient conditions as younger adults would.

When considering a balance for severity of socio-cultural infractions and appropriate punishments participants in different age groups exhibited varying preferences. Research has shown that following death reminders younger individuals are more likely to favor harsher punishments against those who violate moral and socio-cultural standards than older adults do (Maxfield, Pyszczynski, Greenberg, Pepin, & Davis, 2012). This result holds true even though older adults are more likely to rate the transgression as more severe than younger adults would.

One potential reason for this difference in attributional styles can be explained through correspondence bias. This can be described as the tendency to make dispositional attributions of others behaviors based on limited knowledge of the individual (Gilbert & Malone, 1995). In other words, younger adults are more prone to believe a singular transgression is indicative of a generalized trend in the individual's behavior patterns and are more likely to re-offend or have not been punished for previous unidentified transgressions. Following reminders of death, younger adults have been shown to be

particularly prone to making social inferences which give a disproportional weight to situational factors (Gilbert & Malone, 1995).

Older adults are also more prone to experience repeated firsthand reminders of death than younger adults. This is due to a variety of factors including increased health problems, the passing of longtime friends and family, and the internal identification of their social group as one prone to age related death. Despite these inoculating primes against death related anxiety, older adults are still affected by mortality-salience, albeit differently than younger adults. Reminders of death in older adults have shown increased generativity striving, more lenient punishment of moralistic and socio-cultural transgressors, and decrease of approximations life expectancy (Maxfield et al., 2014; Maxfield, Solomon, Pyszczynski, & Greenberg, 2010; Maxfield et al., 2007).

Summary. By and large, the current body of research has relied on experimental manipulation of participants to induce mortality-salience or increase death though anxiety. This is a considerable weakness in the existing body of literature. Few authors have been able to capture mortality salient conditions for testing; however, these are limited and test direct effects of the mortality condition on the immediately threatened population. It is unknown if secondary but similar populations will experience increased death thought accessibility and mortality-salience following a violent attack on a wholly similar culture and express negative appraisals of others in socio-cultural sensitive out-groups. This research has contributed to the above body of literature by addressing in part this gap in effects described by terror management theory.

Implicit Attitudes

The concept of attitudinal formation and its impact on individual behaviors is not new, it dates back to some of the earliest days of psychological inquiry (see Stroop, 1935). The questions of formation, measurement, and impact have persisted through early modernity (e.g., Dovidio, Evans, & Tyler, 1986; Fazo, Sanbonmatsu, Powell, & Kardes, 1986; Gaertner & McLaughlin, 1983). Many of these early studies provided a strong foundation for subsequent and more detailed findings in the realm of automatic attitudes, prejudicial tendencies, and stereotyping (e.g., Cunningham, Preacher, & Banji, 2001; Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Jost et al, 2009).

Attitudes are conceptual mental processes that shape how individuals view the world (Nosek et al., 2007). Generally, these processes are used to delineate inter-group perception and interactions (Horwitz & Dovidio, 2017). Ongoing research into attitudes and their impact on intergroup functionality has revealed two distinct processes, those that are conscious or explicit and those that occur sub-consciously or implicitly (Wilson et al., 2000). The focus of this research is on those implicitly occurring attitudes. Research into the social impact of attitudes has revealed numerous discriminatory in-group versus out-group based implicit attitudes. Following the principles of social identity theory, these attitudes offer an appraisal of the deemed outgroup in comparison to the holder's perceived in-group (Horwitz & Dovidio, 2017; Tajfel, 1974). Implicit attitudes have been demonstrated for race, class, age, religion, sexual orientation, social roles, national citizenship and origin (see Cunningham et al., 2004; Horwitz & Dovidio, 2017; Hummert et al., 2002; Nosek et al., 2002).

Following the mortality-salience hypothesis of terror management theory implicit attitudes can be characterized as a defensive mechanism designed to help individuals quickly categorize and avoid potential threats. The core principle of terror management theory argues that reminders of death will cause individuals to enhance their commitment toward their worldview through bolstering actions, including defense against other conflicting worldviews or opinions (Pyszczynski et al., 2015; Solomon et al., 2004). Results of several experiments invoking recollection of the September, 11, 2001 terrorist attacks on the World Trade Centers noted participants were prone to exhibit aggressive tendencies toward others not part of their social group (Moskalenko et al., 2006; Osborn et al., 2006; Pyszczynski et al., 2003; Yum & Schenck-Hamlin, 2005;). In addition to religious differences participants were noted to have increased tensions with racial minorities, even when the participant was a minority themselves. Researchers concluded that when in a mortality salient condition individuals increase their negative appraisals of out groups, the same out groups influenced by implicit racial bias (Moskalenko et al., 2006; Osborn et al., 2006; Pyszczynski et al., 2003; Yum & Schenck-Hamlin, 2005).

Formation of implicit attitudes. The subconscious nature of implicit attitudes means that the majority of people are wholly unaware of the existence or even occurrence of the attitudes on their perceptions. This creates a level of influence over individual thought and action that occurs before cognitive assessments are made of a given situation, therefore offering a largely unchecked priming function for appraisal of situations and individuals.

In contrast to the explicit attitudes that can be shaped relatively easily through direct discourse, introspection, or influence, implicit attitudes are formed over longer periods of time with repeated exposure to a given stimuli. It is postulated that the majority of implicit attitudes are first formed early in life when individuals experience many different stimuli and situations for the first time (Rudman, Phelan, & Heppen, 2007). Influential stimuli can be objects, people, information, concepts, or situations that expose the observer to positive or negative feelings about the stimuli. Once formed, implicit attitudes are highly resistant to change, even when cognitively presented with contradictory information (Gregg, Seibt, & Banaji, 2006; Horwitz & Dovidio, 2017; Rydell, McConnell, Mackie, & Strain, 2006; Smith & DeCoster, 2000).

The mental process categorizes and organizes experiences and salient factors via semantic links that construct memory stores reinforced through experience as one ages (Neely, 1977). The memory stores offer influential schema and notions in an automatic manner that occurs without any conscious effort. The process of creating interlinked memory stores is a neurological process of systematically connecting neural receptors across the brain (Neely). This physiological process enables an individual to process information in a simple, low-effort, and extremely fast manner that follows a set of rules based on a person's accumulated perceptions of personal experience toward an attitude object (Ranganath, Smith, & Nosek, 2008).

Fundamentally the formation of explicit attitudes is an instinctual process that aids the holder in differentiating good objects from bad ones in an effort to avoid the bad objects in favor of the good ones (Cacioppo & Berntson, 1994) What once may have

been a survival instinct directing individuals to avoid danger has become a core psychological process (Herring et al., 2013).

As a result of the pre-conscious nature of implicit attitudes and the associated sensitivity surrounding discriminatory or prejudicial viewpoints, traditional explicit measures are wholly unsuited to asses implicit attitudes. Specialized instruments have been developed to help address this difficulty. One of the most widely available instruments for assessing both the presence and strength of implicit attitudes is the Implicit Association Test (Xu et al., 2016). The assessment, discussed in more detail in subsequent sections, asks users to make swift parings of stimuli with descriptors that center around positivity, negativity, of a particular group such as race, age, religion, etc.

This research specifically focused on the intergroup implicit attitude concerning race and use of the Implicit Association Test. Research has shown that racially based implicit thoughts about one's own racial group and those of specific out-groups remain relatively consistent throughout the holder's life, even when cognitive perceptions diverge from implicitly held beliefs (Baron & Banji, 2006; Craig & Richeson, 2014; Dunhan, Baron, & Banji, 2008; Rutland, Cameron, Milne, & McGeorge, 2005). Research has shown that White Americans cognitively express nondiscriminatory perceptions of their Black counterparts; however, when testing for the presence implicitly seated racial preferences, results have shown strong implicit preference for whites over Blacks despite the cognitive results (Dovido & Gaertner, 2004; Nosek et al., 2002).

Implicit racial bias. Implicit attitudes have an insidious nature when the concepts of discrimination, prejudice and racism are being discussed. The attitudes are activated

and influence in thinking automatically following a stimuli, much like a reflex (Lane, Banaji, Nosek, & Greenwald, 2007). As a result these processes have the ability to influence an individual's actions and decisions without regard to the conscious intention of the holder (Goodwin et al, 2017; Pyszczynski et al, 2015).

On traditional measures it can be simple to give a response that is socially comfortable to give, particularly if the participant feels there is any chance he or she will be identified. The desire to give socially acceptable responses is also true if the participant feels that the response will directly impact perception of his or her perceived social group. Implicit measures, however, circumvent the cognitive process inspiring social desirability that more traditional cognitive responses are prone to encountering. The proposition of socially desirable replies however, presumes that the participant is aware he or she possess socially incongruent attitudes. But, what if a person believes they are not bias despite sub conscious tendencies to the contrary? The incongruity presented by conflicting cognitive and implicit perceptions is exactly what Greenwald, McGhee, and Schwartz (1998) noted in their research into implicit attitudes and the Implicit Association Test. Greenwald and colleagues compared explicit measures on individual racial preference against results from the Implicit Association Test. The results showed that none of the participants held (or at least reported harboring) explicit racial tendencies; however, on the IAT all but one participant demonstrated racially biased tendencies.

What makes the presence of implicit racial bias important is it's applicability to real-world situations. Beginning in the late 20th Century psychologists noted that there

was a clear increase in egalitarian perspectives in self-report research, however the increase did not match observations made in naturalistic settings (Crosby, Bromley, & Saxe, 1980; Devine & Elliot, 1995).

McConnell and Leibold (2001) demonstrated that individuals who have implicit racial biases are more likely to exhibit frequent anti-social micro-behaviors toward different others including being less likely to converse, smile, make eye contact, or sit closely. Even though these behaviors may be minuscule it is a clear demonstration that implicit attitudes, particularly racially based ones, can and do impact behaviors of individuals across racial lines. These interactions and nonverbal communication cues may not be associated with explicit forms of racism or even the actions themselves be considered prejudicial or discriminatory. However, McConnell and Leibold have provided research that demonstrates a correlation of implicit racial thoughts and explicit actions.

A review of fifteen studies on how implicit racial attitudes amongst healthcare practitioners affected patient service presented results furthering the implicit thought to explicit action dynamic. Initial testing of the population noted similar rates of implicit racial bias amongst healthcare workers as compared to the general population (Hall et al., 2015). The sample included practitioners from various specialties, training and experience levels. Results were grouped into categories including patient-provider interactions, treatment decisions, treatment adherence, and health outcomes. Of these four categories, when correlated to implicit racial bias patients noted negative evaluations in the patient provider interactions category, all others were non-significant. Patients who

interacted with providers of a different race who, unknown to them, had implicit racial bias noted feeling the consults were less respectful, longer, and less collaborative (Cooper et al., 2012). The same patients also noted that their physicians were less friendly and not as warm or welcoming in their interactions.

One of the biggest problems researchers have faced when considering the impact and presence of implicit attitudes is how to measure them. By definition implicit attitudes are part of the sub-conscious and therefore outside of explicit mental function. Once an individual starts to think the conclusions or observations made are explicit. They, however, may be influenced in some part by implicit cognition, but are still actively formed in some form of a critical process. Some early psychological measures attempted to understand and peer into the implicit mind. One of the most famous is the Rorschach ink blot test. The assessment asked participants to examine and state their impressions on a carefully produced, but random looking, ink blot (Tibon-Czopp & Weiner, 2016). Even though the assessment was formulated through critical thinking, it was presumed that implicit processes would influence the nature of the assessment based on the randomness of the blot. The test, however, fell into poor repute through abuses, mismanagement, and administration by unqualified persons.

Social scientists have worked for decades to hone methodologies and processes for measuring individual perceptions and attitudes. The vast majority of these measures rely on participants to report their cognitive thoughts or attitudes. This form of information gathering is only valuable if the subject is open and honest and aware of his or her emotions (Banaji & Greenwald, 2016). With regard to culturally sensitive and

embarrassing topics individuals may have cause to avoid or untruthfully answer particular questions. Testing an individual's implicit thoughts can circumvent these defense mechanisms but may yield poor validity and reliability when measured against techniques designed for cognitive means of assessment (Greenwald, McGhee, & Schwartz, 1998). With the aid of computers researchers have developed an instrument that can help measure implicit attitudes - the Implicit Association Test (Banaji & Greenwald, 2016; Xu et al., 2016). A detailed discussion about the IAT is presented in Chapter 3 under the instrumentation section.

Terrorism

Terrorism is a violent act intent on disrupting the normal daily life of those affected by it. The specific goals of terrorism vary, but the ultimate goal is the same – convince others to accept a differing way of life or die (Injac & Dojčinovski, 2015). In this way terrorism could be viewed as a warlike conflict between cultures and associated world views whereby one group preys on a civilian populace in a permissive environment rather than directly facing a military on a battlefield. Not only are terrorist actions a direct attack on a world view and culture, they serve as a methodology of influence and propaganda (Injac & Dojčinovski, 2015; Iyer et al., 2014). The message being conveyed in every attack to all who may witness it either directly or through distributed reporting is to adopt the alternative worldview or die.

Functions and aims. Terrorist actions, just as propaganda, are vehicles intent on conveying a persuasive message. Injac and Dojčinovski (2015) identified the four specific goals of terrorist propaganda which include (a) a vehicle for the promotion of

ideas, (b) a recruitment tool, (c) the solicitation of resources, and (d) the undermining of legitimate governance. Undermining legitimate governance takes on numerous forms, from engaging in wildly inaccurate storytelling, to history construction, airing perceived wrong doings, to even taking credit for and praising violent attacks against others. The methodology of violence is a hallmark attribute in terrorist propaganda aimed at undermining the effectiveness of governance. Reports of these actions are often disseminated by third party organizations, including media outlets and social connectivity, through a variety of digital and physical means that all include print, photo, and video. Injac and Dojčinovski make the case that terrorists hope to gain legitimate power by undermining that of a governing institution. The goal of promoting these attacks is to make a population feel vulnerable and unsafe.

My research has followed the notion proposed by Injac and Dojčinovski (2015) that terrorist actions are a form of propaganda aimed at influencing those that observe it. Propaganda is a powerful tool that can influence the perceptions and world views of those who observe it. At a cognitive level, viewing images of victims or terrorists after reading articles describing terror attacks have the ability to solicit feelings of sympathy for the victims and anger towards the attackers (Iyer et al., 2014). The differences of emotions solicited by changing images demonstrates the influential nature of the media. Arendt Marquart, and Matthes (2015) furthered the understanding of the effect of influential messaging on implicit and explicit perceptions toward an out-group using posters. Participants viewed propaganda posters that conveyed a strong populist message denouncing immigration. Participants showed a significant shift in implicit preferential

association toward in-group (citizens) over out-group (immigrants). The participant's implicit associations of good versus bad themes in relation to citizens and immigrants were measured first. Participants then took a cognitive battery that measured their preference for the message in the posters, none of the participants demonstrated the bias in a cognitive manner. One of the most critical findings made by Arendt and colleagues is that the participants exposed to the propaganda exhibited strong implicit bias, regardless of the quantity of the exposure. Participants that viewed two posters for ten seconds each responded in a similar manner as those who viewed six posters to ten second each. The implicit bias however, was not effective in altering explicit attitudes when directly asked about the condition. The research by Arendt and colleagues shows that implicitly individuals are largely susceptible to propaganda, and that defenses are only enacted when cognitively aware of the manipulation. This conclusion is critical when understanding the motivations of terrorist actions and individual vulnerability to the messages of such an organization.

It is important to highlight that implicit perceptions and behavior are not always succinctly linked. The differences in these attributes as indicators was studied by Zerhouni, et al. (2016). Following the attack on Charlie Hebdo's publication offices in 2015, numerous cities in France engaged in protests that were said to be protests against the attacks themselves (Zerhouni et al.). The attack was broadcast via nearly every news outlet globally during and after the attacks. Much of the footage either visually depicted or described the violent aftermath of the events. A few outlets even broadcast live footage of an active shooting between the attackers and authorities which included the explicit

killing of a police officer at point-blank range. Concern rose that the protests might actually be linked to a negative in-group/out-group appraisal of Arabs who, in past research, have been identified as possible terrorists based solely on ethnic features (Saleem & Anderson, 2013). A comparison of Arab and French sounding names cross referenced with protest size and adjusted for population showed that cities with larger protests also demonstrated lower bias toward Arab sounding names (Zerhouni et al., 2016). The results presented by Zerhouni, Rougier, and Muller suggests that the implicit motivation to protest following the attack was not ethnically motivated. With the exception of the very few individuals who directly witnessed the attack and survived, everyone who had knowledge of the violence gained the information from some form of propagated media (Nugier et al., 2016). It has been well established and discussed that terrorist acts themselves are forms of propaganda intended to cause fear and threaten many of those who view it (Arendt et al., 2015; Injac, & Dojčinovski, 2015; Iyer et al., 2014).

Effects of exposure. Goodwin, Willson, and Stanley (2005) articulated the perception of undermining legitimate governance by researching demographic traits as predictive indicators for perceptions of threat. The researchers showed shared in-group identity and strong individual values were predictors of a heightened perception of risk from attack and the impact of that attack to oneself and their family. Individuals with high incidents of cognitive benevolence were more likely to perceive a significant threat from terrorists as when compared to other respondents. Goodwin et al. (2005) noted this altruistic outlook placed a high significance and concern on the general welfare,

wellbeing, and safety of regular contacts in relation to perceptions of threat. Goodwin et al. was able to demonstrate that at an explicit level individuals with a shared in-group identity and individual values were more likely to perceive a heightened risk from terror attacks and believe the risk would directly affect themselves and their families. The perception of risk from attack echoes Injac and Dojčinovski's (2015) articulation that terrorists aim to undermine legitimate governance by inspiring fear of attacks in the population. The fear of death and a lack of control are direct indicators of mortality-salient conditions (Greenberg et al., 2015).

Shiloh et al. (2007) showed exposure to reports detailing violent terror attacks has the ability to alter perceptions of threat. Cognitive appraisals of terror attacks amongst college aged participants turned to consequences of victimization and vulnerability as well as trust in authorities and control perceptions. These views represent the security structure of an individual's worldview. Perceptions of the abilities of authorities to protect and the realization of an individual's general lack of control over would be attackers are reinforced by reports of terror attacks. These cognitive realizations led to emotional states of vulnerability and threats of mortality (consequences of victimization) that were very similar to those reported by Goodwin et al. (2005). Shiloh et al. (2007) demonstrated a direct link between terror attacks and altered individual world views on security. The increased emotional representations of victimization and vulnerability created mortality-salience amongst participants in which they had become fearful of the consequences of a potential attack. Despite the lack of implicit measure Shiloh et al.

(2007) demonstrated that reports of terrorists act in a cognitive manner similar to the posters examined by Arendt and colleagues (2015).

Viewing images of terrorist attacks also have an explicit effect on observers as Iyer et al. (2014) explored. Their research employed an eighteen item cognitive measure that assessed both appraisals and emotional responses to viewing two separate conditions commonly distributed by media outlets following an attack. The researchers showed that viewing images of victims after reading an article detailing an attack expressed more sympathetic emotional influence in their responses than participants who viewed images of the terrorists. The latter group, however, exhibited more fear based appraisals via the measure developed by the authors. Iyer et al. (2014) revealed that individuals who are made aware of a terror attack and view images of attackers are more likely to feel fearful of the violence and view the perpetrators as dangerous. The methodology and understanding of explicit emotional reactions from individuals as presented by Iyer et al. (2014) is critical to understanding what effect implicit emotion has. This research also relied on the notions of fear and anger as emotional effects of terror attacks. The notions of fear from perceived vulnerability to attacks associated with terrorism have consistently been demonstrated as not only a goal of terrorist actions but, an effective product of their actions (Goodwin et al, 2005; Injac, & Dojčinovski, 2015; Iyer et al., 2014; Shiloh et al., 2007).

Mortality-salience. Fear of victimization has the ability to activate mortality-salience by making one aware of their own, inevitable, death. It is described concisely by Greenberg et al. (1986) as a condition in which persons are made cognitively aware of

their eventual death or human frailty. The effects of this condition are detailed by Terror Management Theory which postulates that specific cultural mechanisms have been constructed to mitigate existential fear associated with mortality-salience (Greenberg et al., 1986). Terror management theory goes on to inform social identity theory by detailing when these cultural mechanisms are challenged differential attributes designating in-group and out-group status become salient (Greenberg et al., 1986). The underpinning threat of death, when made noticeable, reinforces one's in-group identification and leads to a defense of culturally defining worldviews.

Bradley, Kennison, Burke, and Chaney (2012) demonstrated the implicit effects of mortality-salience by measuring the implicit association of in-group versus out-groups when in a mortality salient mindset via the implicit association test. Bradley et al. (2012) asked Caucasian participants to either consider what would happen when they died or for details on their next scholastic exam. When the students then re-took a version of the IAT that measured the preferential associations between White or Black faces in correlation to positive or negative words. The students who thought of their exam showed an increase in association times of 174 milliseconds; however, those in the experimental mortality salient condition showed an increase of 281 milliseconds, nearly a 62% increase (Bradley et al., 2012). The implication of Bradley et al. demonstrates that mortality salient conditions have a direct implicit effect on in/out-group relationships. It further demonstrates the frailty of the human mind in its susceptibility to implicit manipulation. Bradley et al. (2012) deviated from the path set forth by Arendt et al. (2015) by not including propaganda in their research. Instead they focused on conditions mortality-

salience, which produced similar results as the inflammatory posters. These two pieces of research demonstrate that mortality-salience is an implicitly functioning persuasive message.

Golan and Lim (2016) reinforce concerns raised by Arendt et al. (2015) of the third person effect to influences of individual susceptibility to implicit manipulation, by using recruitment messages from the Islamic State in Iraq and Syria (ISIS). The third person effect describes how individuals perceive and are influenced by anti-social media such as those depicting terrorist actions. The effect details that observers believe they are less vulnerable to persuasive messages from an out-group than members of that out-group. Participants indicated that they felt that ISIS propaganda messages had a more significant impact on young Muslims in the U.S. than on themselves. Participants further indicated that they perceived that others were more likely to be exposed to ISIS propaganda than themselves. Golan and Lim (2016) demonstrated that individuals viewing terrorist propaganda are less likely to view the message as propaganda, as a result the observers are less likely to take that protective measures to negate the explicit influence of the messages presented. This dismissive outlook has concerning implications when considering the implicit and explicit effects caused by minimal exposure to visual media demonstrated by Arendt et al. (2015) and Iyer and colleagues (2014). Failing to recognize the source of these effects prevents the observer from taking protective measures to negate the persuasive message. This result has significant implications for the propagation of the demonstrated effects terrorist actions can have on inducing fear

and mortality-salient conditions (Goodwin et al., 2005; Injac & Dojčinovski, 2015; Iyer et al., 2014; Shiloh et al., 2007).

Evidence from the evaluated research has continually demonstrated that communications detailing terror attacks have a predictable and measureable effect on individual implicit and emotional states. Many of the populations researched had only been exposed to terror attacks through distributed means of communication. The media in which the populations were exposed represented a form of propaganda with the demonstrated ability to influence an individual's world view perceptions related to safety and threat. These specific situational appraisals were noted as indicators of fear or anger in several studies. Representations of violent actions to solicit emotional states of fear related to safety and threat to one's own wellbeing, or the wellbeing of others, is very likely to place an individual in a mortality salient condition. This condition is known to influence an individual's implicit and explicit perceptions of outgroups in a negative manner, particularly along lines of developed biases.

Paris Bataclan attack. Until the tragic attacks that transpired across the north eastern United States on September 11, 2001 the nation had not suffered a major terrorist attack within its borders. The events of that day marks the first time modern terrorists were able to wage an effective attack that took the lives of United States citizens on its own soil. In the years following the attacks in the United States, many nations in the world, in particular modernized progressive western nations. However, less a few small scale attacks that involved stabbings or shootings, France was spared from a major attack (Neiberg, 2017).

Fourteen years, 1 month, and 2 days after the September 11 attacks in the United States, France experienced its first major terrorist attack. The attacks were the largest and most coordinated attacks on France's populace claiming more than 130 lives (Neiberg, 2017). Even though the level of coordination, deaths, injuries, and sophistication of the attacks were distinctly different the attack has been compared to the September 11 attacks in the United States. This comparison follows from several similarities and the significant social impact that both attacks had on each nation. The attacks that had preceded this attack were by in large attacks carried out by individuals with limited means, the majority of which were stabbings. The one exception to this observation was the attack on January 7, 2015. This attack was not only sophisticated and well-coordinated but it also was financed and backed by a larger network of terrorists (Neiberg, 2017). Despite the level of organization and power projection demonstrated by the attack the primary target was not a place or a mass group of people, it was a satirical publication that had offended the image of the Islamic Prophet, Muhamad. This distinction reframes the basis of the attack in a targeted assassination in the eyes of the observers. The attacks on November 13 however, were not a specific targeting and individuals who observed reportings of the attacks were more likely to identify with the victims and perceive a threat to their own lives.

On the evening of November 13, 2015, nine attackers targeted six locations within the city. The attacks commenced at 21:20 Central European Time (CET). The initial melee of violence was swift lasting a mere 33 minutes which resulted a standoff with now hostage takers that lasted for another 117 minutes. At 21:20 CET the first suicide

bomber detonated himself outside the State de France as French and German soccer teams competed. Surprisingly the French President was in attendance at the game and after his evacuation the game resumed. Five minutes later attackers opened fire in the crowded down town 10th arrondissement of Paris. Tem minutes after the first bomber detonated a second detonated himself at the stadium. Shortly thereafter at 21:36 a second series of shootings occurred in the 11th arrondissement of Paris followed by a third suicide bomber. The majority of the deaths occurred around 21:40 when armed men stormed the Bataclan concert hall during a heavy metal concert and begin to shoot concert goers. At 21:53 a fourth individual detonated themselves at the State de France Stadium. The violence ceased at 0020 CET November 14, 2015, as Police stormed the Bataclan Theater, a fifth and final suicide bomber detonated when shot by police forces.

In the span of approximately 150 minutes 130 people had lost their lives and more than 368 were injured (Neiberg, 2017). Seven of the nine attackers were armed with suicide vests, five detonated. Hundreds of rounds were fired in the shootings and an untold number were fired within the Bataclan concert hall. France had not seen this level of violence or death since the Second World War (Wilson, Stanek, Spiro, & Starbird, 2017). In the following months counter terrorist investigations and sweeping stings blanketed Paris, Belgium, and the rest of the European Union.

The first tweets referencing the attack appeared around 21:39, nineteen minutes after the start of the attacks and fourteen minutes after the first shots were fired (Wilson et al., 2017). It follows a logical conclusion noting that the soccer game continued on

after the first blast that the attack was not recognized as a threat until the shots were fired and even then, at that moment, it may have been believed to be an isolated shooting.

As previously mentioned the attacks were not directed at a specific individual or group, they targeted the general population. This broad and indiscriminate approach created the potential for a shared in-group identity amongst both French and non-French observers. The propensity to self-identify with the victims is due to a variety of factors. The predominate reason, already mentioned, can be explained by the principles of social identity theory. Tajfel (1974) postulated that as social creatures humans would automatically sort into like and non-like groups. The basis for these groupings can be based on anything from a concrete demographic, age or race, to something completely abstract, such as order chosen in a game (Howard & Rothbart, 1980). To French observers identification with the victims could have followed numerous lines of similarity including; national citizenship, age, enjoying similar music or even going to concerts in general, observing sporting events, and dining out. Many of these similarities can be observed in an American population including; concert going, dining out, and observing sporting events. One of the biggest annual events observed in the U.S. is the Super Bowl. This singular event hosts over 100,000 individuals and is observed by more than 100 million viewers.

An additional comparison of France and the U.S.'s Hofstede scores reveal a direct cultural similarity. The U.S. is one of the most individualistic nations with a nearly scale breaking score of 91, France is close behind with a score of 71 (Hofstede, Hofstede, & Minkov, 2010). It is important to note that a score of 67 is considered fairly high.

Individualism as measured by the Hofstede scale is a cultural dimension that describes a generalized orientation toward self-gratification versus collectivism or community orientation (Hofstede et al., 2010). This perspective speaks more to the American propensity to identify with the recreational actions of the French citizens and identify with them. In other words, the individualistic scores suggest that American observers are more likely to identify with and visualize themselves taking part in similar activities as the victims of the attacks in France. Consequentially, individuals who observed reporting of the attacks were more likely to perceive a threat to their own lives and therefore experience mortality salient conditions. For these reasons and the ones discussed above the Paris Bataclan attack presents the unique opportunity to observe the effects of a major terror attack on a similar, but geographically separated nation. That nation being specifically the United States of America.

Summary

Terrorism is a violent act that takes direct advantage of a human's unique capacity amongst the animal kingdom to cognitively understand the implications of death in a cause and effect relationship. Acts of terrorism take advantage of this self-awareness and inject themselves as the cause in this chain reaction. The violence and those killed are a form of propaganda intent on persuading observers that they are vulnerable to these acts. This persuasive message is immediately processed by cognitive measures. However, after time has passed the mortality salient condition becomes seated in the subconscious and then becomes implicitly influential (Perloff, 2016).

Globalization of Information

With the advent and promulgation of modern technology the reporting of news and events is constantly evolving and increasing in speed. Individuals consume information not just from printed media and television broadcasts, but from handheld devices and software. These handheld devices have turned the individual into not only a hyper-consumer of information, but also a sensor and reporter of the same. When the observer becomes a reporter of information the emotional impact of the event is amplified and exponentially shared across repetitive mediums in nanoseconds (Goodwin et al., 2017; Holman, Garfin, & Silver, 2014; Monfort & Afzali, 2017).

A prime example of how individuals are influenced from observing news reports can be seen in nearly every high profile criminal case and the ensuing protests and now often violence that follows. After Casey Anthony's acquittal, there were reports of women being assaulted who visually resembled the defendant (Boyle, 2011).

Realizing how simply mortality-salience can be triggered, it is of little surprise that direct exposure to violent actions via traditional and social media can trigger varying intensities of mortality-salience. The persistent and hyper-connected nature of modern media only exacerbates this condition.

Bringing terrorism home. The globalization of reporting events in near real time and with what are often vivid and graphic audio and visual representations recorded at the scene has effectively expanded the reach and influence of terrorist actions (Brown, Brown, & Richards, 2015; West & Lloyd, 2017). No longer are individuals immune to the events occurring across the globe. It is difficult for researchers to pinpoint the exact

effects of the actual event owing to the propagating effects of media broadcasting (Van de Vyver et al., 2016). These reports not only amplify the population exposed to the violence, they also provide an amplifying focus on the distress, horror, and suffering experienced by the victims. When individuals view the persistent and vivid reporting of the event they become more prone to suffering the same psychological distress as those who observed the attack first hand, almost literally bringing the effects of the attack to the door step of the observer.

Media reporting and coverage of modern terrorism has helped promulgate the image that modern terrorism is a product of Islam and its related teachings (Brown et al., 2015). The increased accessibility and speed in which individuals receive information has also sped the spread of implicit biases and reporting of violence. This globalization of reporting at light speed also carries identity-based bias for individuals, mostly Muslims and individuals who exhibit Middle Eastern ethnic decent or cultural traits that ultimately subject the individual to prejudice (Ogan, Willnat, Pennington, & Bashir, 2014; West & Lloyd, 2017).

This assertion was further reinforced by recent research that investigated how likely individuals were to deem a violent attack as terrorism or not depending on weather the perpetrator was Muslim or not (West & Lloyd, 2017). Researchers presented participants one of two news articles discussing a terrorist attack. One article presented the attacker as a non-Muslim attacker and the other presented the attacker as Muslim. Participants were then asked to classify the action as a crime or terrorist attack. Results demonstrated participants were more likely to label an event as a terrorist act when the

perpetrator was presented as Muslim. This study demonstrates a propensity to readily associate out-groups (Muslim) with terrorism versus similar (non-Muslim) in-groups in identical situations. These results an implicit bias in favor of associating religious Islam directly with terrorism. The study, however, limited it's participants to White males with a racially ambiguous named non-Muslim (specifically Christian) for the scenario.

Research undertaken by Van de Vyver, Houston, Abrams, and Vasiljevic (2016) six week prior to the London transport bombings on July 7, 2005, was aimed at examining moralistic, political, and prejudicial outlooks amongst individuals in the United Kingdom. Six weeks after the researcher's data was collected the '7/7' bombings targeted London's underground and bus transportation systems leaving 52 dead and 770 others injured. This left the researchers with a socially representative sample of United Kingdom citizens surveyed prior to an attack, a truly unique piece of data. Researchers worked to contact participants to complete another survey approximately four weeks following the attack. The surveys measured moral foundations, attitudes towards Muslims and immigrants. Participant political orientation was also measured as either liberal or conservative for comparative reasons. The moral foundations measure could be further broken into components which measured in-group loyalty, authority respect, harm care, and fairness reciprocity. This category and it's sub components are critical to highlight for the present research as they also measure the foundational tenants of terror management theory, the propensity to defend the in-group following a mortality salient event such as the '7/7' attacks. Of the moral foundations components significant interactions were noted between time and in-group loyalty and fairness reciprocity, but

not in the authority or harm foundations. Statistically significant results were found following the attacks for attitudes towards Muslims and immigrants.

The results were based on participant thoughts nearly a month after the attacks. During this time span, reporting on the attacks and continued through numerous mediums exposing many individuals to representations and reminders of the violence over and over. The research demonstrated that liberally oriented individuals adopted opinions that were significantly similar to that of conservatives. The pre-attack differences in political outlooks nearly all but vanished. The in-group endorsement difference between liberals and conservatives ($b = 0.10$) was dramatically reduced following the attacks ($b = .02$).

Summary and Conclusions

Terrorist actions, just as propaganda, are vehicles intent on conveying a persuasive message. Injac and Dojčinovski (2015) identified the four specific goals of terrorist propaganda which include (a) a vehicle for the promotion of ideas, (b) a recruitment tool, (c) the solicitation of resources, and (d) the undermining of legitimate governance. Terrorist actions aim to influence those who observe them and like other forms of propaganda have the ability to affect individual perception in both implicit and explicit ways (Arendt et al., 2015).

Implicit bias is a tendency occurring largely without cognitive steering, it is automatic and impactful. The behaviors influenced by implicit attitudes and bias could largely be considered the status-quo of intergroup relations, particularly as explicit racial bias is falling (Devine & Elliot, 1995). The effect of terrorist attacks has been well

documented on how individuals perceive and interact with the world in both explicit and implicit ways.

Speaking specifically of effects at an implicit level from exposure to terrorist related violence can result in changes to individual moral perspectives (Van de Vyver et al., 2016), perceptions of personal security and safety (Goodwin et al., 2005; Shiloh, et al., 2007), increase prejudicial associations of ethnic identity (Saleem & Anderson, 2013), and religious affiliation with terroristic qualities (West & Lloyd, 2017). Compounding the influence is research demonstrating that many individuals feel they are wholly immune to these influential effects of terrorist attacks (Golan & Lim, 2016), and individuals with shared in-group identity and strong individual values are at risk for experiencing heightened negative effects following exposure to such violence (Goodwin et al., 2005). These are the known and expected results from a terror attack on a localized population. But, there is little research attempting to understand how these violent events affect implicit attitudes of individuals in a global perspective. This evidence coupled with the principles of terror management theory offer a blueprint detailing the expansive influential impact of terrorist violence on anyone who witness reports of the actions.

This chapter provides a comprehensive review and presentation of literature relevant to the research topic presented. It included discussions on the foundation and empirical support for terror management theory, implicit attitudes, the implicit association test, terrorism, and globalization of information. As presented above how terrorist attacks affect implicit out-group evaluations is a well-researched topic. However the present body of literature only looks at the populations of the nation where the attacks

occurred, there was little research available which attempted to understand how individuals in similar, but geographically separated nations are implicitly effected by terror attacks.

The following chapter (Chapter 3) will discuss the methodology used in the study in detail. It will also present a discussion on the research design and rationale, methodology, data analysis, threats to validity, and ethical considerations and procedures. The following chapter will also provide a detailed review of the research question, hypothesis, instrumentation, and selected population. It is followed by chapter 4 which will present the initial findings which will include, descriptive statistics on the population, results from statistical tests run, and preliminary findings based on said results.

Chapter 3: Research Method

Introduction

The purpose of this study was to compare IAT and racial anxiety scores between groups of U.S. persons who completed the assessments before and after media reports of a terror attack in a foreign western nation. In this chapter, I will present a detailed discussion of the research design. Including the research design and rationale, methodology, research question and hypothesis, population, instrumentation, data analysis procedures, threats to validity, and ethical considerations. The research design and rationale section will include a detailed discussion of the variables. Variables include the two-level independent variable, two covariates, and two dependent variables. In this section, I will also expand on the foundational rationale for this study as a quantitative natural experiment. In addition, I will further discuss constraints related to the design and use of archival data.

In the methodology section, the population will be defined, as well as sampling procedures for archival research. In this section, I will present information on the study's calculated power of analysis with effect size, its alpha level, and its power levels. In this section, I will also discuss recruitment and participation requirements for the original study. Information about the availability of the data set to researchers is also included in this section.

Following this content, the research question and hypothesis will be discussed in relation to the selected instrument. Demonstrating how the selected instrument is an ideal choice for addressing the research question will provide the necessary framework on

which data analysis may be undertaken. The chapter will conclude with identification and discussion of threats to both internal and external validity. In this concluding section, I will also consider the unique strengths that archival research brings to quantitative research. The section will close with a discussion of ethical considerations.

Research Design and Rationale

This study was a quantitative natural experiment. The precognitive nature of implicit attitudes and cognitive nature of explicit attitudes (racial anxiety) are ideally suited to be recorded in a quantitative manner. The independent variable was constructed with two levels comprised of before and after attack participants. There were two dependent variables, Race-IAT scores and race anxiety scores. In addition to these two variables, there was also two covariates employed during the study: participant age and religiosity.

The two levels of the independent variable distinguish those who participated in an IAT assessment prior to the terrorist attack and those who participated afterwards. The break in time surrounding the attack enabled both control and experimental conditions facilitated by nature. Although individuals were not randomly assigned to the before and after conditions, IAT assessments take place daily in Project Implicit's Virtual Laboratory (https://www.projectimplicit.net/infrastructure.html). Though individuals self-selected when to take the assessment, they can be considered assigned as-if random by nature if an intervening event did not, itself, affect participation (Dunning, 2012). The selected design leveraged the naturalistic setting in which the data were originally

collected. This is a positive consideration for external validity which will be discussed in the following sections.

Naturalistic experiments allow researchers to investigate research problems that may otherwise be unethical or impractical for a variety of confounding reasons (Dunning, 2012). My research specifically revolved around the occurrence of an actual terrorist attack. To capture the effects of such an event in a traditional control and treatment group design with varying interventions would have been not only impractical but potentially unethical. Terrorism is a violent act that is difficult to predict, and often occurs with little or no public warning. Observing individuals to measure the before and after effects of terrorist violence would require a longitudinal study with a very large population or waiting for an attack to occur by coincidence. If the location and timing of an attack were known in advance it would be unethical to observe individuals without warning them, or the appropriate authorities, of the impending danger. In an experimentally speaking, such a warning could contaminate the research. The selected naturalistic design eliminated these concerns.

For this experiment, participants were assigned to groups based on their participation in relation to the occurrence of the Paris Bataclan attack. This assignment strategy, combined with the fact that participants took the Race IAT independent of the terror attack and this research, caused their placement in before and after categories to be considered an *as-if* randomization (Dunning, 2012). The online format and detailed construct of the Project Implicit database made this type of randomization possible.

I leveraged archival data provided by Harvard University's Project Implicit (Xu, Nosek, & Greenwald, 2014). This ongoing project is intended to test and educate individuals on their implicit attitudes as manifested in associative dimensions (Xu et al., 2014). The project offers a variety of tests that each focus on different prejudices. The different assessments include measures of racism, sexism, and ageism, among others (Xu et al., 2014). For my study, I used data gathered from the Race IAT, which measures implicit racism. In addition to the principal assessment, the IAT, participants are asked to complete a number of demographic and cognitive measures. A select few of these additional constructs were used as described in the following section.

Methodology

Population

The provided data set contained mostly quantitative variables with a few qualitative ones. My study employed only select quantitative variables to define the population. The data set in its entirety encompasses a time frame spanning from 2002 through 2016 and has nearly 4 million entries from around the world representing numerous demographics (Xu et al., 2014). This massive sample was then narrowed to meet the dimensions of the research question.

The target population for this study included all White U.S. citizens over the age of 18 who were residing within the United States during the specific time frames surrounding the Paris Bataclan terror attack. The sample included persons meeting these criteria who had completed the Race IAT and relevant demographic and psychometric measures. The sample was bounded by a few considerations. One of the principal factors

that bound the sample is attributable to the IAT being available online. This fact bounded the sample to include persons who completed the assessment for reasons other than this research and also to those whom have access to a computer with an Internet connection.

Sampling and Sampling Procedures

The sample was drawn in entirety from the Race-IAT data set, which is available freely from https://osf.io/52qxl/. The specific inclusion criteria for this study included the following: being Caucasian, aged over 18, and a citizen and current resident within the United States during the selected time frame. The final sample was narrowed from the cumulative sample of nearly 4 million individuals who met these criteria. The inclusion criteria were met by leveraging four items presented in the data set's codebook from the demographics and session information sections. From the demographics section, race, age, citizenship, and country of residence were determined. Identification of age relied on Item 53, a self-reported measure that ranges from 1 to 99. Individuals who reported an age from 1-17 were removed from the sample. Identification of a participant's race as Caucasian relied on responses to Item 58 (i.e., participants entered *White* as their race). To determine a participant's citizenship, Item 64 was used. Current residency was determined by Item 65. Individuals with responses other than *U.S.*, representing the United States, for both of these criteria were excluded.

Power analysis for sample size depends on the most demanding of analyses to be performed. For this study, analyses included include a MANCOVA, ANCOVA, and canonical correlation. Sample size for an omnibus MANCOVA is insufficient for detecting an effect in an ANCOVA. Although statistically significant covariates enhance

the power of the independent variable, sample size is calculated for the more conservative 2-group ANOVA. With alpha at .05, power at .80, and an expected population effect size of Cohen's f = .25 (a medium size effect), a sample size of 128 (64 in each level of the independent variable) is required (G*Power v3.1.9.2; Faul, Erdfelder, Lang, & Buchner, 2007). A sample size of 128 is also sufficient for Stevens' (1986) recommendation of at least 20 times as many cases as variables in a canonical correlation (with five variables—one independent, two dependent, and two covariates—128 is 25.6 times as many cases as variables).

The number of eligible cases in the dataset could not, and was not, known until the commencement of data analysis. According to Xu, Nosek, and Greenwald (2014), from 2002 to 2012, 2,355,303 individuals completed the Race IAT. Of these, 86.1% were U. S. citizens and 70.2% were White. Thus, doing the math, 1,423,597 cases fit both criteria, which, across the 11 years, is an average of 129,418 annually and 2,489 weekly. The time frame of this study spans four weeks, which, on average, indicates approximately 9,955 potential cases. Xu et al. did not report a breakdown by age, so some of these cases may be under 18. Nonetheless, the expectation of extracting at least 128 eligible cases was reasonable. For purposes of this study, all eligible cases were retained for analysis.

Procedures for Recruitment, Participation, and Data Collection

The Race-IAT is freely available for participants to take via Project Implicit's web site (https://implicit.harvard.edu/implicit/). Individuals may seek to participate for a variety of reasons that include a desire to learn more about their implicit attitudes,

fulfilling assignments for school, work, or to learn more about the instrument. No compensation of any form was offered to participants via the Project Implicit site. None of the participants that comprise the population of this research were recruited or completed the assessment for the explicit purposes of this research project. Additionally, it is highly improbable that any participants completed the assessment because of, or in anticipation of, the Paris Bataclan attack.

My study used archival data from Project Implicit to analyze and report findings (Xu et al., 2014). Project Implicit is an ongoing study with a publicly accessible instrument as discussed earlier. These datasets are offered freely to researchers to further the investigation of implicit associations via Open Science Framework (OSF) hosting. The data used in this study was retrieved from https://osf.io/52qxl/.

Instrumentation and Operationalization of Constructs

The IAT is a computer based instrument that is designed to measure the comparative strength of associations between objects or concepts. The objects and concepts can be constructed to represent nearly anything, however, most versions of the test are developed around social 'isims' or prejudicial relationships. This research used the Race version of the IAT (Race-IAT) designed to measure changes in implicit racial preferences.

The assessment itself is constructed on a fairly straightforward concept. Based on individual perceptions and preferences it will be easier to pair what the participant views as similar items together. In the racial version of the IAT individuals are asked to pair images of White or Black faces that are representative of Caucasian and African

ethnicities against either positive or negative terms and attributes. The images stop just above the eyes, bisect the lips laterally, and are cropped at the temples (Banaji & Greenwald, 2016). It is also important to note that the facial images are presented in a grayscale that renders skin tone nearly identical throughout all the images. The selection is made using dissimilar key strokes associated with the term being either good or bad. The parings of Black and good, White and bad, Black and bad, and White and good are rotated with every participant. There are a total of seven phases, including practice rounds that only expose the participant to single category parings (Nosek et al., 2007). The three practice phases contain 20, 20, and 40 parings respectively. The additional four critical phases contain 20, 40, 40, and 40 parings respectively. In a completed assessment the participant will have made 220 parings. Even though there are three practice phases the scores developed during their parings are used on the final overall score, referenced to as a *D* score (Nosek et al., 2007; Greenwald, Nosek, & Banaji, 2003).

When the test begins the user is given the opportunity to practice for a few frames to understand the process and get used to the ergonomics of the test. A trial run will be very similar to the measured trials. At the onset the user will see a blank screen with two dissimilar categories flagging the upper corners of the screen. If one is Black and good then the other will read White and bad. Participants are then shown one of the images of a face described above or a word that has clear positive or negative connotations. The individual taking the assessment must select the appropriate category by depressing either the right or left key.

A trial may begin with the Black and good and White and bad categories. The Black and good will appear on the left side of the screen and the White and bad on the right. The left category can be selected by depressing the ‘W’ key and the right by selecting the ‘O’ key. Individuals my then see a White face appear in the center of the screen. To advance they will need to depress the ‘O’ key. If the wrong key is selected the program will notify the individual of the mistake and ask them to make another selection. The trial will only advance when an accurate selection is made. Once the proper selection is made another item will appear on the screen. The term ‘pleasure’ may appear. Given the proposed categories this would require a selection of the ‘W’ key to advance, thereby paring Black and good with the term ‘pleasure’.

Scoring. An important distinction between this and cognitive measures is the tests ability to tap into and measure implicit processes. The basis of this distinction comes into how the assessment is scored. As noted, implicit thoughts occur in an internally spontaneously manner with no conscious effort as a result of some stimuli (Fazio et al., 1986). In order to avoid cognitive appraisals of the given stimuli and categories participants are required to categorize as quickly as possible. Traditionally the differentiation between cognitive and implicit motivators is awareness. Once an individual is aware of the stimuli they begin to cognitively appraise it and make decisions according to a number of external and internal influences (Fazio et al., 1986). Given the nature of the IAT individuals are fully aware of their participation and the intent of the test. As a result categorization and input into the instrument must occur before the

individual is able to cognitively process the information. Time becomes the discriminator in identifying strengths of individual sub-conscious thoughts.

The underlying algorithms of the assessment measure the timeframes in which a stimuli is presented to when the participant makes the correct key stroke. The paper demonstrative version of the test is timed with a stopwatch or second hand on a wristwatch and an overall time is recorded per phase (generally only two phases are used in the demonstration version; Banaji & Greenwald, 2016). These times are then deducted from one another for a general score. The computer based assessment however, is able to measure each of the 220 parings to the millisecond. The scoring algorithms currently used in the computer based version of the IAT was extensively researched and produced to overcome identified shortcomings in the original construct. The current algorithm better aligns implicit-explicit correlations, combats response speed variations, accounts for prior experience with the Implicit Association Test, and accounts for known effects on results from external influences (Greenwald et al., 2003).

This *D* score is a calculated score that takes several factors into account: (a) scorings from all the trail phases, (b) elimination of rapid responses less than 400 ms, (c) elimination of responses in excess of 10,000 ms, (d) penalties incurred for incorrect parings, (e) and removal of response latencies above two standard deviations by phase (Greenwald et al., 2003). The resultant score ranges from -2 to 2 and is presented to two or three decimal places. The positive or negative correlation only have meaning when compared to the original test. For the racial IAT a positive score indicates a higher propensity to implicitly favor the White over Black stimuli while a negative indicates the

converse. A score of zero indicates no inclination to favor one over the other. In general terms a score of greater than $D > .50$ or less than $D < -.50$ is considered a substantial effect (James, 2017; Xu, Nosek, & Greenwald, 2014). For comparative purposes New Mexico's accumulative mean score on the racial IAT test covering the past ten years is the lowest in the United States at $D = 0.341$ while Mississippi rates the highest at $D = 0.456$ (Xu et al., 2014).

Summary. Xu et al. (2014) developed the Race-IAT test to measure implicit racial associations and made it publicly available on Project Implicit. The core IAT has remained largely unaltered throughout the course of the project. The demographic and cognitive psychometric measures have changed adding to or taking away from the overall dataset.

The original version of the IAT was developed over 20 years ago by Greenwald and Banaji (1995). The current version of the Race-IAT available online has been adopted by many researchers and individuals to test implicit attitudes about race. Across many of these studies sensitivity has been gauged via test-retest methods (e.g., Bosson, Swann, & Pennebaker, 2000; Greenwald & Farnham, 2000). An accumulative average of test-retest reliabilities has been reported to be above $r = .6$ and split-half reliabilities for IAT effect range from $r = .89$ to .92 (Greenwald, Nosek, & Banji, 2001). Additionally, in two experiments testing implicit attitudes towards homosexuality internal consistencies were reported at $\alpha > .83$ and correlation between trials $r = .52$ ($p < .001$; Banse Seise, & Zerbes, 2001). The populations accessing the test, and ultimately contributing to the

above results, are varied and contain demographics from across the world and the United States.

The resultant instrument presented in the code book contains 829 separate items in five broad sections; IAT, demographics, debriefing, explicit measures, and session specific information. This research used five items from four of these sections to address the research question. The sections contain a mixture of measures that range from user input (e.g., age), Likert type scales (e.g., race anxiety), to calculated scores (e.g., IAT scores). Specific items and their constructs are detailed below.

Operationalization. RQ1 - While controlling for religiosity and age, to what extent does the linear composite of overall IAT scores and racial anxiety scores differ between US residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack?

To test RQ1, items identified via the codebook were as follows. From the IAT section Item 14 Overall IAT D Score, -2 to 2 based on psychometrically assessed implicit association. From the demographics section Item 53 Age, self-assessed age (*from 1 to 99*). Also from the demographics section Item 87 Religiosity, self-assessed (*1 'not at all religious', 2 'slightly religious', 3 'moderately religious', 4 'strongly religious'*). From the explicit section Item 510 racial anxiety (e.g., When interacting with Black people, I feel...Anxious.), self-assessed (*1 'Never', 2 'Very Rarely', 3 'Rarely', 4 'Occasionally', 5 'Frequently' 6 'Very Frequently', 7 'Always'*). Finally, from the session section, Item 829 recorded date and time of the test administration (recorded as SPSS DATETIME21 format).

Data analysis plan. I assessed the impact of an independent variable on two dependent variables along with two covariates, accordingly a multivariate analysis was used. The dualistic relationship of the independent variable and covariates with the dependent variables made this an ideal approach. The specific test employed was a multivariate analysis of covariance or MANCOVA as the test is most commonly referred and was conducted using IBM Statistical Package for the Social Sciences (SPSS). This assessment provided the ability to observe the effect of an independent variable on multiple dependent variables while controlling for the effect select influences other than the identified independent variable (Field, 2013). This approach is similar to, but more efficient than running multiple back-to-back analysis of covariance (ANCOVA) tests with the different dependent variables. In addition to the efficiency of combining multiple tests into one, the single test approach also helped control for Type I errors (Field). Following the initial MANCOVA test univariate ANCOVAs and multivariate canonical analysis were used to further understand and interpret the initial MANCOVA results.

My study conducted analysis by employing a MANCOVA test as outlined above for the research question using IBM SPSS. The initial assumptions about the dataset for using this test include homogeneity and normal distribution of the dependent variable. Homogeneity refers to the variances across groups within the study (Field, 2013). Levene's test and F_{max} (ratio of group variances; Tabachnick & Fidell, 2007) were used to test for homogeneity of variances and descriptive statistics offered insight into the normality of the dependent variables. The results of these tests are be presented and discussed following this chapter in Chapter 4.

My study used an independent variable with two levels, two different dependent variables, and two control variables. For the independent variable, before and after attack groups, were determined by the date and time in which individuals accomplished the assessment. All individuals who took the assessment between the dates of October 30, 2015, and November 12, 2015, were considered part of the before level. Individuals who completed the assessment between the dates of November 14, 2015, and November 27, 2015, were considered part of the after attack level. The date of the actual attack, November 13, 2015, will not be analyzed because exposure or not cannot be clearly determined.

My study has two separate dependent variables. The first dependent variable, overall IAT scores, is a score that ranges from -2 to 2. This score conveys the intensity of implicit racial preference. The second dependent variable, racial anxiety, is a self-reported response to a seven point Likert scale that ranges from 1 (*no anxiety*) to 7 (*constant anxiety*). Two covariates were also employed during the analysis.

Covariates are variables that like the independent variable are expected to, or known to, have a direct effect on the dependent variable (Fields, 2013). The effect of these influential variables on the dependent variable can be controlled for statistically (Fields, 2013). This study controlled for the effects of two distinct variables. The first covariate, age, helped control for variations in the intensity of mortality-salience across generational gaps (Maxfield et al., 2007). Age, as reported in the demographics, was accounted for in terms of whole years lived to the date when the assessment was completed. Additionally, religiosity served as the second covariate. Religiosity has been

shown to have a dampening effect on mortality-salience (Goodwin et al., 2017). This variable was been self-reported via a four point Likert scale from 1 (*not at all religious*) to 4 (*strongly religious*).

Research questions and hypothesis. This study was founded on the following research question:

RQ1: While controlling for religiosity and age, to what extent does the linear composite of overall IAT scores and racial anxiety scores differ between US residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack?

Null Hypothesis ($H_0$1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety scores do not differ between US residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack.

Alternative Hypothesis (H_A1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety differ between US residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack.

Threats to Validity

This study was a quantitative natural experiment that analyzed an independent variable with two levels, two covariates, and two dependent variables (Dunning 2012; Vogt, 1999). Archival research enjoys a generally strong level of external validity (L'Eplattenier, 2009). This is, in part, due to the fact that the participants are unaware of

their role in the current research. This ultimately circumvents the potential for participants to alter their behavior in a manner they perceive will benefit the research or garner favor with the researcher. Furthermore, the research at hand sought to study the second order effects of terror attacks on implicit and explicit racial attitudes. The data provided by Project Implicit provide excellent dependent measures that fill these requirements.

Despite the strong inclination for high external validity that archival research brings to the project, a concern of falsifying IAT scores has been discussed in the literature (Nosek et al., 2007; Schlachter & Rolf, 2017). This discussion is largely fueled by participant deliberations posted to social networking sites. On occasion individuals who have taken the IAT will leave comments stating that they had explicitly attempted to receive the result they preferred to get though application of cognitive means (Greenwald, & Banaji, 2007). Unlike explicit measures that are vulnerable to user manipulation the IAT has been shown to be largely resistant to such attempts (Kim, 2003; Kim & Greenwald, 1998).

With most archival studies the most significant threat to internal validity is history (L'Eplattenier, 2009). Owing to the nature of the data having already been collected, it was impossible to control for all the factors that may influence the variables being measured. This threat was addressed by identifying and then controlling for specific variables known to have significant impact on the dependent variables. As documented throughout chapter two, age and religiosity have been shown to have a strong influence on implicit responses to threat and ultimately mortality-salience (Goodwin et al., 2017;

Maxfield et al., 2007; Nosek et al., 2007; Wrzus et al., 2017). In an attempt to mitigate external threat, these two variables were designated as covariates for the research. Taking the above rationale into consideration the resultant research enjoys a strong validity and reliability.

Ethical Procedures

I analyzed publicly available research data that contained no information that could be used to personally identify any participant. The data set did contain demographical information such as age, race, and metropolitan location code (a derivative of postal code). However, these are insufficient for identification of specific individuals. The data were collected under the oversight of Harvard University and originally vetted through their ethics and Instituional Review Board (IRB) processes.

When participants visit Project Implicit they are presented a splash page before being permitted to proceed to the test section. This page offers information on informed consent and an additional link to learn more about the IAT. Participants are informed that no personally identifiable information will be collected. Additionally, participants are made aware that the anonymous results are kept for future research and IP addresses are part of this collection, however strictly confidential. This research did not use datasets which include IP addresses. Most importantly, participants are warned of the possibility of receiving results that may be uncomfortable or in conflict with their explicit views and beliefs. Participants are urged not to proceed if they feel they are unprepared to cope with this possibility. Approval from Walden University's IRB was sought and obtained before the researcher accessed the dataset in question.

Summary

This research was designed to formulate better understanding of how individual's racial perceptions were implicitly and cognitively affected by terror attacks in foreign countries. This was accomplished via archival research using data provided by Project Implicit. The nature of this study was a quantitative natural experiment employing a MANCOVA for principal analysis to resolve the relationship between a two-level independent variable, two covariates (age and religiosity), and two dependent variables (IAT scores and explicit racial anxiety). Univariate ANCOVAs and multivariate canonical analysis were employed to further understand and interpret the MANCOVA results.

Chapter 4: Results

Introduction

The purpose of this quantitative research was to compare IAT and racial anxiety scores between groups of U.S. persons who completed the assessments before and after media reports of a terror attack in a foreign western nation. In this chapter, I present the results of the data collection and analysis for this study. I address the purpose of the research through a detailed discussion of the actions taken once IRB approval was obtained through final analysis. Discussion of the meaning of the stated results and their implications for the scientific community are saved for Chapter 5.

This chapter is organized into several sections that are chronologically representative of the analysis undertaken. The first section includes a reintroduction to the research question and hypothesis and a discussion of IRB approval and data collection from Project Implicit via Open Science Framework along with information on the cleaning of the data. The subsequent section contains the preparatory statistical analysis undertaken for the study including descriptive statistics of the final data set and an evaluation of relevant statistical assumptions. The following section contains the statistical analysis undertaken for this study and includes presentation of data from the MANCOVA, ANCOVA 1, and ANCOVA 2 analyses. The canonical correlation assessment was not conducted based on the results of the MANCOVA. Finally, this chapter closes with a summary and brief introduction to Chapter 5.

Research Questions and Hypothesis

This chapter focuses on statistical presentation of data intended to address the following research question:

RQ1: While controlling for religiosity and age, to what extent does the linear composite of overall IAT scores and racial anxiety scores differ between U.S. residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack?

Null Hypothesis ($H_0$1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety scores do not differ between U.S. residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack.

Alternative Hypothesis (H_A1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety differ between U.S. residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack.

Data Collection

I analyzed archival data retrieved from Open Science Framework hosting via https://osf.io/52qxl/. These data contained no personally identifiable information and were freely available to use without a detailed agreement or the need to create an account to obtain access. Walden University's IRB provided ethical oversight and approval to conduct the study with the selected dataset (approval number 3-27-18-0465118).

After obtaining IRB approval, I began formal collection by downloading the Racial IAT dataset from 2015. The download was a 1.2 gigabyte Windows zip file which contained the dataset named Race IAT.public.2015.sav. The codebook was downloaded along with the dataset.

The population sought for this study was all White men who were citizens of, and resided within, the United States. Valid cases used for the study met these demographic criteria and had a completed IAT score, explicit racial anxiety score, and a religiosity assessment, having completed the assessments in one of two specific windows. These windows revolved around the November 13, 2015, Paris Bataclan Terrorist attack. The first level included the dates from October 30 through November 12, 2015. The second level encompassed participants from November 14 through 27, 2015.

The unaltered dataset contained 810,472,184 individual pieces of data from 1,028,518 participants encompassing 788 variables. The first step was to narrow the dataset by date range. All cases from January 1, 2015 through October 20, 2015 were removed along with cases from November 28, 2015 through December 31, 2015; use of this process resulted in the removal of 936,405 cases. The dataset was further narrowed for race. First, cases with no racial identifiers were removed followed by all cases which did not indicate a ‘6’ for White; this process resulted in the removal of 61,787 additional cases.

The data were then narrowed geographically to include only individuals who were not only citizens of the United States, but also residing within the United States at the time the assessment was completed. Participants who indicated a country code of

anything other than ‘1’, including null cases, were removed. This cleaning removed a further 6,383 cases from the dataset. Next, the data were sorted and cleaned per age and gender. Individuals with birthdates after 1997 or reported ages of less than 18, including null responses, were removed, totaling 4,912 cases. Cases (12,319) with null or nonmale identifiers were also removed.

After the data set reflected the targeted demographics, I cleaned it to ensure completeness of the dependent variables and covariates. Null scores for the Race-IAT, cognitive racial anxiety, and religiosity were removed. The cleaning removed a further 6,449 cases from the dataset. In total, 1,028,225 cases were removed from the original data set.

The data was sorted into chronological order, and cases for each level of the independent variable were identified. The before terror attack level contained approximately 144 valid cases, and the after attack level contained 119 valid cases. Of note there were only 12 cases meeting the study criteria recorded on the day of the attack. The 12 cases recorded on November 13, 2015, were not included in any of the following calculations. After the cleaning and sorting of the data, a total of 263 valid cases were identified for use in the study; 144 in the prior to the attack level and 119 in the post attack level. This final count, however small compared to the entire data set, is still nearly 50% larger than the minimum power calculated in Chapter 3 of 128 cases.

As discussed in Chapter 3, the sample size was calculated for the more conservative 2-group ANOVA. With alpha at .05, power at .80, and an expected population effect size of Cohen’s f = .25 (a medium size effect), a minimum sample size

of 128 (64 in each level of the independent variable) was identified as the minimum number of valid cases to produce reliable results using G*Power v3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007). A sample size of 128 was also sufficient for Stevens' (1986) recommendation of at least 20 times as many cases as variables in a canonical correlation (with five variables—one independent, two dependent, and two covariates—128 is 25.6 times as many cases as variables). With 263 cases selected, the data set provided nearly 52 times as many cases as variables. All of the valid cases were retained for analysis.

Results

Demographics

Much of the common demographical information including gender, race, and country of citizenship were narrowed rendering analysis of these common demographics meaningless. Important demographics included covariates and religious affiliation. The covariates of this study were religiosity and age. Although not a covariate, religious affiliation offers further insight into the religiosity of the dataset and is presented in this section for discussion. All three of these variables were assessed using self-report measures completed by participants.

The data included either the participant's age or their birth year. In instances where birth year was given, a whole year calculation was conducted in SPSS. After cleaning, the data participant ages ranged from 18 to 78, with 50.6% of the participants being 22 and under. The most frequently ages identified were 19 (13.7%), 20 (9.5%), and 21 (10.3%), with 36, 25, and 27 participants, respectively.

Religiosity was measured by individual response to a prompt asking the participant to identify how important religion was in their daily life. The possible responses included 1 ‘not at all religious’, 2 ‘slightly religious’, 3 ‘moderately religious’, and 4 ‘strongly religious’. The most common response was 1 ‘not at all religious’ accounting for 42.6% of the responses, frequency 112. The least common response was 4 ‘strongly religious’ with 30 responses, 11.4%.

Religious affiliation offered further insight into the religiosity measure discussed above. Since this variable was not used as a determining factor when the data was cleaned there was one case that did not respond to this prompt, 0.4% of the total sample. The largest percentage of religious affiliation reported was the lack thereof. The number of participants responding ‘Not Religious’ was 100 (38%). This was followed by ‘Christian: Catholic or Orthodox’ with 71 (27%) responses and ‘Christian: Protestant or Other’ with 65 (24.7%) responses. The implication between the religiosity and religious affiliation variable is that approximately 4.6% of participants (12) consider themselves as ‘not at all religious’ while still having a religious affiliation.

Descriptive Statistics

As discussed above the final number of cases used in this research were 263. The independent variable was the date on which participants completed the Race IAT and comprised of two levels. The first level, coded as IV1, was comprised of all participants who completed the assessment from October 30, 2015, through November 12, 2015,. The second level, coded as IV2, was comprised of all participants who completed the Race IAT between November 14, 2015, and November 27, 2015. The use of levels for the

independent variable allowed the research to encompass and account for changes in scores before and after the November 13, 2015, Terrorist attack that occurred throughout Paris, France. The before attack level, IV1, contains 144 (54.8%) cases and the after attack level, IV2, has 119 (45.2%) cases.

The dependent variables included the participant's overall IAT score, DV1, and racial anxiety, DV2. The overall IAT score was calculated by the computational power programed into the Race IAT system and provided the participant a score that ranged from -2 to 2 out to three decimal places. A score of '0' indicates no racial preference while a score that is positive indicates a stronger association towards White individuals and a negative score indicates a stronger association towards Black individuals. Scores around .15 and -.15 are considered 'slight', scores around .35 and -.35 are 'moderate', and scores up to a .65 or -.65 are considered 'strong' (Nosek, Banaji, & Greenwald, 2002). Scores above a .65 or -.65 are not directly categorized by the test, but considered extreme for this study. No two participants scored the same on the assessment, this is very likely owing to the possibility that each participant could achieve one of nearly 4,000 differing scores. The highest score was 1.203 (.4%) and the lowest was -.853 (.4%).

Overall the Race-IAT scores broke out with 73 (28%) participants scoring above a .65 indicating an extremely strong preference towards Whites. The next highest category was 'strong' preference for Whites and comprised 63 (24.2%) participants followed by the 'moderate' category with 46 (17.7%) participants. The encompassing slight category (from .15 to -.15) contained a total of 38 (14.6%) participants. A total of 14 (5.4%)

participants scored in the ‘moderate’ preference for Blacks. There was a slight jump with 20 (7.7%) of participants scoring a ‘strong’ preference for Blacks. The final category had 3 (1.2%) participants scoring above a .65 indicating an extremely strong preference towards Blacks. Of the entire sample 209 (80.4%) cases showed some implicit inclination towards Whites, 136 (52.3%) of them would be considered significant.

Level one of the independent variable encompassed all participants who completed the assessment prior to the Paris Bataclan terror attack. The mean implicit racial score of this portion of the sample was reported as .34270 (N = 144, SD = .454610; see Table 1). This score resides at the higher end of a moderate implicit racial bias score. The corresponding cognitive racial measure mean was 2.62 which indicates the mean correlates to a level 2 ‘very rarely’ on the cognitive racial anxiety measure (N = 144, SD = 1.252). For covariate reported religiosity the mean was 1.88 which indicates the results are predominantly 1 ‘not at all religious’ (N = 144, SD = 1.007). The last covariate, age, has a mean of 29.6 (N = 144, SD = 12.6) indicating the average age of participants prior to the attacks were nearly thirty.

Table 1

Descriptive Statistics of Key Study Variables

Variable	Min.	*M*	Mdn.	Max.	*SD*
Before attack (*n* = 144)					
Race IAT	-0.85	0.34	0.38	1.17	0.45
Cognitive racial anxiety	1	2.62	2.00	6	1.25
Religiosity	1	1.88	2.00	4	1.01
Age	18	29.57	23.50	78	12.64
After attack (*n* = 119)					
Race IAT	-0.68	0.37	0.40	1.20	0.42
Cognitive racial anxiety	1	2.84	3.00	5	1.19
Religiosity	1	2.11	2.00	4	1.06
Age	18	26.50	22.00	65	11.21
Total (*N* = 263)					
Race IAT	-0.85	0.35	0.38	1.20	0.44
Cognitive racial anxiety	1	2.72	3.00	6	1.23
Religiosity	1	1.98	2.00	4	1.03
Age	18	28.18	22.00	78	12.08

Level two of the independent variable encompassed all participants who completed the assessment after the Paris Bataclan terror attack. The mean implicit racial score of this portion of the sample was reported as .36519 (*N* = 119, *SD* = .418797). This score resides at the lower end of a strong implicit racial bias score. The corresponding cognitive racial measure mean was 2.84 which indicates the mean is nearly a level 3

'rarely', but mostly a level 2 'very rarely' on the cognitive racial anxiety measure (*N* = 119, *SD* = 1.193). For covariate reported religiosity the mean was 2.11 which indicates the results are predominantly a level 2 'slightly religious' (*N* = 119, *SD* = 1.056). The last covariate, age, has a mean of 26.5 (*N* = 119, *SD* = 11.2).

The descriptives detailed in Table 1 indicate a higher implicit racial score and higher levels of explicit racial anxiety as well. There was a slightly higher level of religiosity in the post attack group as well as a generally younger participant following the attacks. The shift in implicit racial scores was predicted by the literature discussed in Chapter 2. This is the second indication that the data retrieved is behaving like expected. The high rate of implicit scores indicating a bias implicit attitude alongside a low rate of cognitive racial scores also follows predictions made by the literature. These findings are a framing tool used to better understand the data that was analyzed in the subsequent sections.

The second dependent variable, racial anxiety, was a self-report cognitive measure. It asked participants to respond to the prompt *'When interacting with Black people, I feel…Anxious'*. Participants were given the following options to choose from; 1 'Never', 2 'Very Rarely', 3 'Rarely', 4 'Occasionally', 5 'Frequently' 6 'Very Frequently', 7 'Always'. The most frequently chosen response was 2 'Very Rarely' at 27.8% (73), followed by a tie between 3 'Rarely' and 4 'Occasionally' with 23.2% (61) responses each. None of the participants selected the response 7 'Always' and only .8% (2) selected 6 'Very Frequently'.

Table 2

DV2 Cognitive Racial Anxiety

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Never	50	19.0	19.0	19.0
	Very Rarely	73	27.8	27.8	46.8
	Rarely	61	23.2	23.2	70.0
	Occasionally	61	23.2	23.2	93.2
	Frequently	16	6.1	6.1	99.2
	Very Frequently	2	.8	.8	100.0
	Total	263	100.0	100.0	

It is important to note that there was a striking incongruity noted between the implicit racial measure, DV1, and the explicit one, DV2. As the literature suggested there was a far greater occurrence of racial preference for Whites in an implicit setting versus a cognitive one. It is important to highlight that the two dependent variables behave as previous research has suggested. The incongruence of racially focused cognitive and implicit responses is an excellent area for future researchers to work in.

Evaluation of Statistical Assumptions

Tests of Normalcy

Prior to preforming the statistical analysis presented in the following section several statistical assumptions had to be addressed. Assumptions of normality, homogeneity of variance, homogeneity of variance-covariance matrices, and

multicollinearity were assessed. Skewedness of the dependent variables were tested using SPSS. Kurtosis of the data was evaluated by the same methodology. Even though it is suggested that general liner model tests, like the MANCOVA and ANOVA, are resistant to non-normality of this type in sample sizes above 100 the assessments offer further insight in to the data used (Tabachnick & Fidell's, 2007). Results of the tests are presented in Table 3. Based on the discussion in the descriptive section the skewness and kurtosis results are not surprising. There is a significant tendency for participants to experience extremes in on both ends of the cognitive and implicit measure spectrum. This caused a polarized skewness and kurtosis. However, these results are well within acceptable ranges. More discussion on this will follow in Chapter 5.

Table 3

Skewness and Kurtosis of DV1 and DV2

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
DV1_Overall IAT D score	263	-.429	.150	-.393	.299
DV2_Cognitive Racial Anxiety	263	.227	.150	-.828	.299

Homogeneity of Variance

Levene's Test of Equality was also performed for both dependent variables. Results are presented below in Table 4. Levene's Test of Equality of Error Variance was run to test the error of variance of both dependent variables (the measure of explicit racial

anxiety and overall IAT D score) were equal throughout both levels of the independent variable (weather individuals took the Race-IAT prior to or following the attack)

Both dependent variables across both levels of the Independent Variable failed to obtain significance in Levene's test. The first dependent variable, Overall IAT D scores had a significance of $p = .332$, and the second dependent variable, cognitive racial anxiety had a significance of $p = .212$. With Levene's test if the results fail significance ($p > .005$) it is assumed that the data is homogenous across the variables, as was the case with the variables at hand.

Table 4

Test of Homogeneity of Variances

	Levene statistic	df1	df2	Sig.
DV1_Overall IAT D score	.946	1	261	.332
DV2_Cognitive Racial Anxiety	1.568	1	261	.212

Homogeneity of Variance-Covariance Matrices

Box's M test was used to determine the homogeneity of variance-covariance matrices amongst the dependent and independent variables presented by the research question. This test was employed to determine if the distributions of the two dependent variables (Overall IAT D score and Cognitive Racial Anxiety) were equal across both levels of the independent variable (prior and post attack levels). The results of this test are presented in Table 5. Much like Levene's test the critical value for violating the test is

a significance value (*p*) higher than the expected value. In this case the expected value that must be exceeded is $p < .001$. As Table 5 demonstrates Box's M test of the given variables is $p = .887$.

The results demonstrate that the dependent variables are equally distributed across the independent variable. Even though this indicates that follow up ANCOVAs would not be required to confirm the results of the MANCOVA, the additional tests are conducted to offer further insight into the results of the MANCOVA.

Table 5

Box's Test of Equality of Covariance Matrices[a]

Box's M	64.972
F	.803
df1	72
df2	8960.083
Sig.	.887

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.
a. Design: Intercept + date

Multicollinearity

Multicollinearity was assessed by calculation of correlations between the dependent variables (Overall IAT D score and Cognitive Racial Anxiety) with collinearity statistics. None of the correlations between the variables exceeded the general limit of .80 (Field, 2016). Table 6 presents these results.

Table 6

Summary of Test of Multicollinearity

	DV1_Overall IAT D score	DV2_Racial Anxiety	CV1_Age	CV2_Religiosity	IV1,2_Session date
DV1_Overall IAT D score	1	.155*	-.018	-.022	.032
DV2_Racial Anxiety		1	-.004	-.048	.076
CV1_Age			1	.088	-.068
CV2_Religiosity				1	.126
IV1,2_Session date					1

Statistical Analysis

Statistical analysis of the cleaned dataset included a MANCOVA, and two ANCOVAs. The MANCOVA analysis is presented as the heart of the research. It was employed to offer initial insight into the phenomena discussed in the preceding chapters. It was used to factor out the influence of the noted covariates on the dependent variables. The research problem presented is multivariate in nature and compared simultaneous profiles of the variables at hand. The research discussed in Chapter 2 highlighted the known and expected interactions of the stated variables.

As discussed in the demographics section of this chapter, initial evaluation of the dependent variables and their interaction with one another revealed a higher rate of implicit racial bias than cognitive racial anxiety. Such a finding reinforced the discussion from Chapter 2 that racially based cognitive measure may be prone to false reporting. Because of the disparagement between the two instruments conducting the additional ANOVAs following the initial MANCOVA allowed for further breakout and analysis of the variables and was thus warranted. These additional tests concentrated on the interaction of the independent variable and each of the dependent variables and with the natural occurring influence of the covariates. Finally, a canonical correlation was originally planned to better understand the strength of the relationship between the variables tested in the original MANCOVA. Owing to the results of the MANCOVA analysis this final analysis was not needed.

MANCOVA

A multivariate analysis of covariance (MANCOVA) was conducted using IBM SPSS 21. This statistical test was used to determine if there were and significant differences in Overall IAT D scores (dependent variable 1) and Cognitive Racial Anxiety (dependent variable 2) existed between when the assessment was completed (prior to or following the terror attack) while simultaneously controlling for participant age (covariate 1) and religiosity (covariate 2).

Results, shown in Table 7, indicated there was not a significant effect of the linear composite of implicit and explicit scores prior to and after a terror attack while controlling for age and religiosity. The Wilk's Lambda was very high, .990, with a non-

significant *p* value of .289. The effect of the covariates Age and Religiosity had almost a negligible effect on the model. Wilk's Lambda for the covariate Age was extremely high at 1.0 and a significance *p* value of .951. This suggests that age had almost no, if any, effect on the construct. Religiosity had a similarly high Wilk's Lambda at .996 but, lower yet still statically not significant *p* value of .611. Initial indications from this MANCOVA were that age and religiosity have no effect on implicit and explicit racial assessments given a two week look surrounding an attack.

Table 7

Model Summary of MANCOVA Analysis for Research Question 1

Effect	Wilks' Lambda	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.624	77.851[b]	2.000	258.000	.000	.376
CV1_Age	1.000	.050[b]	2.000	258.000	.951	.000
CV2_Religiosity	.996	.493[b]	2.000	258.000	.611	.004
IV_2 Level, Prior and Post attack	.990	1.247[b]	2.000	258.000	.289	.010

a. Design: Intercept + CV1_Age + CV2_ Religiosity + IV_2 Level, Prior and Post attack
b. Exact statistic

These results support a decision to accept the null hypothesis of research question 1. Subsequently, the results of the MANCOVA were statistically non-significant there was therefore no need to conduct the Canonical Correlation to further understand the MANCOVA results. The initial MANCOVA analysis was followed up with two separate ANCOVA analysis that examined each dependent variable independently of each other.

This analysis was undertaken to further delineate and examine the relationships influencing the dependent variables.

ANCOVA 1 – Overall Race IAT D Score

An ANCOVA was conducted that leveraged the same two-level independent variable encompassing the week prior to and week following the attack along with the dependent variable of participant's overall IAT D score as was used in the MANCOVA. This test also used both Age and Religiosity as covariates, but did not use cognitive racial anxiety as a dependent variable. Results of this test are displayed in Table 8.

The relationship of the variables was non-significant across the analysis. Both of the covariates had significance levels that exceeded the standard used for this research of $p < .05$. Age had a p value of .884 and Religiosity was $p = .708$. The main interaction of when the assessment was taken also failed to demonstrate any significance with a p value of .673.

Table 8

Model Summary of ANCOVA Analysis – 2 week Overall IAT D score

Source	Type III Sum of Squares	df	Mean Square	F	Sig (*p*).	Noncent. Parameter	Observed Power[b]
Corrected Model	.071[a]	3	.024	.122	.947	.366	.072
Intercept	4.161	1	4.161	21.465	.000	21.465	.996
CV1_Age	.008	1	.008	.039	.844	.039	.054
CV2_ Religiosity	.027	1	.027	.140	.708	.140	.066
IV_2 Level, Prior and Post attack	.035	1	.035	.178	.673	.178	.070
Error	50.212	259	.194				
Total	83.032	263					
Corrected Total	50.283	262					

a. R Squared = .001 (Adjusted R Squared = -.010)
b. Computed using alpha = .05

ANCOVA 2 – Cognitive Racial Anxiety

A second ANCOVA which focused on what was originally the second dependent variable, Cognitive Racial Anxiety, was conducted with the same two-level independent variable encompassing the week prior to and week following the attack used throughout this chapter. This test also used both Age and Religiosity as covariates. Results of this test are displayed in Table 9.

For this measure the relationship of the variables were expected to be, and were, non-significant across the analysis. Both of the covariates demonstrated non-significant *p* values; Age $p = .829$ and Religiosity $p = .334$. The main interaction of when the assessment was taken also failed to demonstrate any significance with a *p* value of .117.

Table 9

Model Summary of ANCOVA Analysis – 2 week Cognitive Racial Anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[b]
Corrected Model	4.653[a]	3	1.551	1.029	.380	3.086	.278
Intercept	223.815	1	223.815	148.436	.000	148.436	1.000
CV1_Age	.070	1	.070	.047	.829	.047	.055
CV2_ Religiosity	1.413	1	1.413	.937	.334	.937	.161
IV_2 Level, Prior and Post attack	3.724	1	3.724	2.470	.117	2.470	.347
Error	390.526	259	1.508				
Total	2339.000	263					
Corrected Total	395.179	262					

a. R Squared = .012 (Adjusted R Squared = .000)
b. Computed using alpha = .05

Summary

Statistical assumptions and sample size was satisfied for all of the analysis. All of the relationships assessed in this chapter did not meet statistical significance defined as $p < .05$, thus resulting in an inability for this research to reject the stated null hypothesis. Despite a difference in the direct comparison of raw means of the implicit and cognitive racial measures prior to and following the attack, there was not a significant effect of the linear composite of said variables.

This chapter was organized into several sections that are chronologically representative of the analysis undertaken which included a MANCOVA, and two ANOVAs. The originally planned canonical correlation was not conducted as a result of the non-significance of the MANCOVA. These assessments looked at the data from a

time period that comprised a week out and following the selected attack. Across all of the analysis conducted no statistical significance was observed. Even though based on the literature presented in Chapter 2 these results were surprising, they are very informative. The specifics of the results and implication for this and future research will be discussed in detail in the following chapter.

Chapter 5 will summarize the entirety of the research at hand and present conclusions about the findings presented within Chapter 4. Chapter 5 will also present potential implications for social change, limitations of this research, and recommendations for further research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

I designed this study to investigate the potential impact of distributed reporting of terrorist violence on implicit racial attitudes across national lines. My focus was on understanding the impact of a terror attack within France on a select U.S. population. This chapter contains a summary of the results from Chapter 4, my interpretation of the findings for each statistical test run, and discussion of the limitations of the research. It closes with a discussion of opportunities for future research and the potential implications for social change this study may foster.

According to the World Terrorism Index (2017), only 30 nations in the world could be considered to be unaffected by terrorist activity in 2017. This statistic means the remaining 165 nations in the world are affected in some form by the violence of terrorists. Each of these nations are interconnected be some form of media broadcasts including social media stream photos, words, videos, and emotions across the globe in a matter of seconds. When the information shared though these platforms represents terrorist violence, the messages have the demonstrated ability to psychologically impair viewers. This impairment can alter perceptions of threat (Shiloh et al., 2007), induce mortality-salience (Greenberg et al., 2015), and even heighten fear and anxiety (Iyer et al., 2014). The propagating effects of media broadcasting on a continuous cycle can significantly exasperate these conditions (Van de Vyver et al., 2016). These effects were demonstrated amongst the U.S. populace following the 9/11. The vast majority of the U.S. population had no firsthand account of the attacks and received their impressions of

the violence via distributed media reporting. Despite a relatively small fraction of the U.S. population having witnessed the attacks first hand, nearly 90% of Americans suffered some form of habit or mood-altering stress, with 40% of these cases considered severe (Dewa et al., 2014).

The 9/11 attacks, however, was carried out within the United States aboard American aircraft with a large number of Americans onboard the planes and within the towers. As a result it was very easy for American observes to create a shared social identity with the victims. As noted, the United States is not the only country at risk of the effects of terrorism. The effects that terrorist violence has on populaces where the attack occurred have been well researched. However, in reviewing the literature I found few studies of how terrorist violence once distributed across the world affects other populations in other nations. My study adds to the body of knowledge on how terrorism may affect populations outside of the one in which the attack initially occurred.

Summary of Results

I collected archival data that were freely available from Project Implicit. After narrowing the data to include the target population, I retained a total of 263 valid cases for analysis. The target population for this research was White men over the age of 18 who were citizens of the United States and residing within the country at the time of the assessment; the 263 cases fit these criteria. The age of participants varied, with 50.6% being between the ages of 18 and 22. The youngest participant was 18 and the eldest 78 years old; the average age was 28. In addition to age, religiosity varied. Of the 263 cases,

42.6% indicated that they were “not at all religious” while 11.4% indicated they were “strongly religious.”

Because of the large number of participants who claimed not to be religious, individual religious affiliation was also recorded. Religious affiliation and religiosity did not align as expected. Approximately, 38% of the participants indicated they were “not religious”, which was 4.6% less than all who had indicated their religiosity strength was “not at all religious.” This statistic implies that 12 participants identified with a religious identity but likely felt it had no influence over their decision making. Aside from this finding, 51.7% of the sample held some form of the Christian belief system.

I conducted data analysis using SPSS version 24. Analysis included a MANCOVA and two ANCOVAs. The originally planned canonical correlation was not conducted based on the results of the MANCOVA. In the “Interpretation of the Findings” section, I further discuss the results of these tests in relation to the research question and hypotheses, which were, as follows:

RQ1: While controlling for religiosity and age, to what extent does the linear composite of overall IAT scores and racial anxiety scores differ between U.S. residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack?

Null Hypothesis ($H_0$1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety scores do not differ between U.S. residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack.

Alternative Hypothesis (H_A1): While controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety differ between U.S. residents who took the IAT just prior to the Paris Bataclan terror attack and a group who took it just after said attack.

Interpretation of the Findings

Results of three main statistical analysis were nonsignificant. This result was largely surprising given the findings in previous research. Based on these results, the null hypothesis could not be rejected. A conclusion of my research, thus, is that the Bataclan terror attack specifically did not affect the linear composite of implicit and explicit racial attitudes of American White men residing in the United States while controlling for age and religiosity.

Analysis of the demographics and construction of the dataset yielded noteworthy findings early in the research. As suggested by the literature there was a significant difference between cognitive reports of racial anxiety and implicit racial bias. This finding reinforces previous research that indicates individuals may give untruthful answers on cognitive measures that ask the participant to provide potently socially uncomfortable assessments about their individual perceptions. Additionally, a direct comparison of the raw mean of implicit racial attitudes indicated an increase of implicit racial bias of .03 following the attacks. This finding provided support for the alternate hypothesis, however, as the findings of the main analysis indicated this shift was multivariately nonsignificant.

MANCOVA

The MANCOVA analysis analyzed the two-level independent variable that included participation 2 weeks prior to the attack and 2 weeks following the attack with implicit and explicit racial preferences as the dependent variables. The analysis also controlled for age and religiosity. The results of this analysis indicated that there were no significant multivariate differences between when the assessment was taken and implicit or explicit racial attitudes (p = .289). Additionally, there was no statistically significant effect of age (p = .951) or religiosity (p = .611) on the model. Thus, the null hypothesis that overall IAT scores and racial anxiety scores do not differ, while controlling for religiosity and age, between U.S. residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack, was accepted.

ANCOVA 1

The first ANCOVA analysis analyzed the two-level independent variable that included participation 2 weeks prior to the attack and 2 weeks following the attack with only the implicit racial preference as the dependent variable. The analysis also controlled for age and religiosity. The results of the first ANCOVA indicated that there was no significant multivariate differences between when the assessment was taken and implicit racial attitudes (p = .673). Additionally there was no statistically significant effect of age (p = .884) or religiosity (p = .708) on the model. Thus the null hypothesis could not be rejected even in part. The first ANCOVA analysis reinforced the findings of the MANCOVA. The analysis reinforced the acceptance of the null hypothesis.

ANCOVA 2

The second ANCOVA analysis explored the same two-level independent variable used in the previous two analyses. This ANCOVA employed only the explicit racial preference measure as the dependent variable. The analysis also controlled for age and religiosity. The results of this ANCOVA indicated that there was no significant multivariate differences between when the assessment was taken and explicit racial attitudes (p = .117). Additionally there was no statistically significant effect of age (p = .829) or religiosity (p = .334) on the model. Thus the null hypothesis was accepted.

Summary

The results of the three main statistical analysis were non-significant. As a result the null hypothesis was accepted; while controlling for religiosity and age, the linear composite of overall IAT scores and racial anxiety scores do not differ between U.S. residents who took the IAT just prior to the Paris Bataclan attack and a group who took it just after said attack. The implication of the findings note that there was no significant multivariate shift in implicit or explicit racial attitudes in American men over the age of 18 following the Paris Bataclan Terror attacks. Although the results of the main analysis were not statically significant for effect, the lack of effect noted is important to this study and future research. Also of importance to note was the direct comparison of implicit racial attitude means. There was an observable shift in the raw mean of implicit racial measures following the attack. The shift was very small, only .03, but an indication of some change. As the discussion above noted this effect was not strong enough to have a multivariate effect on the overall analysis.

The lack of effect in the main analysis demonstrates that the Paris Bataclan attack did not multivariately affect racial bias on an implicit, or explicit, level for American White males. It is also important to note that the covariates used throughout this study, age and religiosity, also had no effect on the effect of the attack on participants. Noting the lack of effect offers insight into the reach of terrorist violence outside of the localized area. Prior research has noted significant effects of such violence on the local populace and even on distant populaces when mortality-salience is induced. Limitations of this research are discussed in the following section as well as recommendations for future research. This chapter closes with a discussion on how these results can effect positive social change.

Limitations of the Study

This study suffered from three limitations. Many of these limitations were due to the research design that limited the scope and potential applicability of the data. All of these limitations were identified prior to conducing the research and were mitigated as much as was practical. Despite these limitations the results of the final study are reliable.

A major limitation in this study was the narrowing of the data to a very limited population and focus on effects of a singular attack in a singular nation. Even though the study was designed to analyze only White males over the age of 18, who were also citizens of and residing within the United States; this population is laser focused. This narrowing of the population severely limits the generalizability of the results. However, the intent was not to test all potential demographics, but a very narrow one for effect.

Even though that effect was null future research could benefit from expanding the sample for a larger comparison of gender, race, and nationality.

A second limitation of the study rests with the data itself. The study relied on the use of archival data for analysis. Since the data was originally collected for means other than this particular study there was no guarantee that it would satisfactorily address the stated research question (Frankfort-Nachmias and Nachmias, 2008). A detailed review of the codebooks prior to the study and thorough review of the collected data identified variables and cases suitable for the study.

The historical nature of the data leads to a potential limitation surrounding participant sincerity on each of the retained variables. Since the data was collected without the principal researcher present it is nearly impossible to determine how seriously the participant took the assessment. There is ample evidence that demonstrates the heartiness of the IAT but, this does not account for the cognitive measures. This research has followed others before it who have used similar measures and assumed the self-report measures as accurate and truthful representations of the participant's reality.

Recommendations for Future Research

This research contributed to the body of knowledge surrounding implicit reactions to terrorism. This research has opened the doors to further inquiry, it analyzed a population that was limited in gender, racial identity, nationality, and residency. It also examined the effects surrounding a singular attack against the reactions of one other nation.

The hyper focused nature of my research only offers insight into a very limited population. Future research would benefit from expanding this initial look and including additional genders and racial identities as well as nationalities into the mix. The limited population of this study prevented analysis and conclusions based on the comparative intensity of results cross gender and racial lines. Insights into these demographical differences would further explain the incident of implicit effects.

Additionally, furthering the understanding of the implicit effects of terrorist violence in a general since would greatly benefit from future research. My research focused its efforts solely on implicit racial bias related to White and Black racial profiles. Researchers should consider expanding the implicit effects and racial combinations studied.

Lastly, my study focused solely on the American reactions to a singular attack that occurred in France. Continuing research into the effects of terrorist activity on other combinations of nations would provide evaluable insights to the discipline. It is suggested that a strong analysis of Hofstede's and other cultural dimensions accompany the research. Even though this research demonstrated a strong link between French and American cultures the link was not enough to produce a significant multivariate response from the observed population. Even though there was no statistically significant effects observed by this research, the results when compared to another culture may be significant. Comparing the intensity of implicit impact between an outside nation and the one effect by the attack would benefit the field greatly.

Despite the null findings of my research, it has served as a starting point for future researchers to investigate an area in which the effects of terrorism have been only lightly researched before.

Implications for Social Change

The significance of this study was based on furthering the understanding of terrorist violence on implicit attitudes across national boundaries. Knowing the information and results of this study will allow researchers, national security and intelligence professionals, academics in the security industry, psychologists, and those who encounter terrorist violence the ability to remain cognitively proactive against potential implicit threats.

This study has contributed to positive social change by having taken the first steps into understanding the implicit effects of terrorist violence on geographically separated observers. Owing to the nature of pre-cognitive attitudes unless they are made known to the holder, they will never be recognized or known. As a result terrorism has the potential inspire socially negative consequences that may go wholly unrecognized or mitigated. This study lays the ground work for future research into this arena.

The results of my study also offer significant considerations for homeland security professionals. The results of the study suggest a potential impartiality of international partners when working with security officials following terror attacks. Following terrorist violence individuals closest to the attacks can encounter significant psychological effects stemming from the violence (Dewa et al., 2014, Iyer et al., 2014, Shiloh et al, 2007). These effects can falsify perceptions of threat (Iyer et al., 2014) and

increase fear and anxiety (Shiloh et al, 2007). If outside observers are implicitly impartial to the events then distance may serve as an inoculation of sorts against unintended or observable bias. Such bias influencing individuals leading the recovery efforts following terrorist attacks can lead to poor decisions or actions that exasperate the effects of terrorist violence rather than mitigate them.

Additionally this study may lead to positive social change in the psychology, intelligence, and national security fields, both academic and in practice. My research has uncovered an area that has received little attention in research and practical applications. The threat of implicit reactions to terrorism is an insidious threat against a general population following terrorist violence. Despite the null findings of this study perusing the lines of research identified within this chapter offer significant opportunity for positive social change. Not only in the arena of furthering knowledge and prevention strategies of a known global threat, such as terrorism, but also in understanding how implicit attitudes are formed and effected.

Conclusion

On November 13, 2015, France experienced its first major terrorist attack that claimed more than 130 lives (Neiberg, 2017). The attackers employed both suicide vests and firearms as they assaulted several outdoor market places and restaurants, a soccer stadium, and a concert hall. Terrorist actions, just as propaganda, are vehicles intent on conveying a persuasive message. Modern advancements in technology speed breaking news across a myriad of devices and mediums (Holman, Garfin, & Silver, 2014; Monfort & Afzali, 2017). With push notifications, likes, shares, tweets, and the countless other

mechanisms for distributing information gruesome reports of violence are only seconds away from any one person in the world. The impact of terrorist attacks is no different. Not only are these events deliberately deadly they are non-discriminate in their victimology (Injac & Dojčinovski, 2015). Witnesses exposed to this reporting that share socially identifiable attributes similar to those of the victims have the propensity to self-identify with said victim (Sachs, Veysey, & Rivera, 2017).

The intent of this research study was to bring insight into the international effect terrorist violence has on implicit racial bias. The research relied on archival data from Project Implicit which had captured implicit racial attitudes of individuals in the United States surrounding the time in which the Paris Bataclan attacks occurred. Initial analysis of the data revealed a slight increase in overall implicit racial bias following the attacks. This analysis however, was a simple comparison of raw means. The results of the main statistical analysis, which included a MANCOVA and two ANCOVAs yielded no statistically significant indications of linear composite impact on implicit or explicit racial attitudes following the attack. Further research could benefit from expanding not only the variables used, but the number of attacks and countries analyzed. Using this information to better national security response and intelligence reporting as well as the psychology of terrorist victims will help foster positive social change.

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