DEADLY PREMONITION: DOES TERRORIST-LEADER PSYCHOLOGY INFLUENCE VIOLENCE LETHALITY?

by

CLAYTON THOMAS BESAW
B.A. University of Central Florida, 2011

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ABSTRACT

This thesis seeks to address a theoretical and empirical gap within terrorism studies, and more specially the study of terrorist-group lethality. This research updates a model of terrorist-group lethality by including terrorist-leader psychology as an individual-level variable in predicting terrorist-group lethality. Terrorist-leader statements were analyzed by using two novel coding schemes called Operational Code and Leadership Trait Analysis to create quantified measurements of leader cognitive beliefs and personality traits. The empirical portion of this study utilizes pooled cross-sectional time-series data within the framework of fixed effects and multi-level estimation models. The results find that terrorist-leader psychology, and more specifically Instrumental (Strategic) Beliefs and Distrust, are significant predictors of subsequent group-lethality.

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ADDRESSING A GAP IN TERRORISM STUDIES

Introduction

A modern and parsimonious definition of terrorism has yet to achieve a well agreed upon status within the literature on terrorist violence. Scholars have debated that terrorism must be of a random or indiscriminate nature, so to cause fear in individual members of a target audience or out-group (Jongman, 2005; Kalyvas, 2004), while others have said that terrorism can be highly discriminate or a mixture of both discriminate and random violence (Crenshaw, 1981). Another issue with a comprehensive definition of terrorism is the identity of the perpetrator. Terrorism, and subsequently, terrorist violence, is correctly classified as a *tactic* that can be utilized by both states, and a variety of sub-state actors (Hoffman, 2006; Laqueur & Alexander, 1978). This study is interested in the latter, sub-state groupings, that conduct terrorism, with the author's description of terrorism being defined as the *intentional* application of, or threat of violence for political or social purposes, through the intimidation of a larger audience (Hoffman, 2006; Sandler & Enders, 2007), and the *strategic* targeting of civilians or government affiliated non-combatants (Stanton, 2013; Wilson & Piazza, 2013). This definition is more supportive of the notion that terrorism can have both a discriminate and indiscriminate outcome, with special emphasis on the conditions of intentional and strategic violence.

The definition provided above separates the act of terrorism from other types of violence (criminal, interpersonal, psychotic, war, etc), and also allows the inclusion of discriminate uses of violent behavior (targeted killings, assassination, etc.) against civilians and government affiliated non-combatants. The theoretical interest of this study concerns the role of the leaders within these sub-state organizations, with the substantive research question addressed by this study being: Does the psychology of terrorist-leaders affect the lethality of terrorist-group violence?

It is apparent that the lethality of terrorist violence committed by terrorist organizations has a considerable degree of variance (Asal & Rethemeyer, 2008; LaFree, 2010). So far the study of terrorist violence lethality has focused mostly on organizational mechanisms that cause specific groups to be more deadly than others (Asal & Rethemeyer, 2008). Much of the scholarship has focused on material mechanisms that influence violence levels, but there is some scholarship that addresses psychology as a potential explanatory variable. These studies address questions such as what causes individuals to pursue political violence (Crenshaw, 1986), and if psychology can predict when terrorists will use violence (Hermann & Sakiev, 2011; Walker, 2011). Other studies have shown that terrorist leaders are distinct in their operational codes from normal political leaders (Lazarevska, Sholl, & Young, 2006).

It has been shown that capabilities and ideology are empirically important predictors of lethality amongst terrorist organizations (Asal & Rethemeyer, 2008; Hoffman, 1995, 2006; Piazza, 2009). These studies have been well received and are in fact quite intuitive as will be discussed in the coming literature review. It should be clear that this study does not seek to

invalidate previous hypotheses concerning the lethality of terrorist-group behavior, but to try and take into account potentially salient individual level variables when studying terrorist-group lethality. Neither the individual group members nor leaders are deemed as possible explanations for variable outcomes in lethality compared to material capability or group ideology (Crenshaw, 1992). While other studies have looked at terrorist-leader psychology (Hermann & Sakiev, 2011; Picucci, 2008; Walker, 2011), they have not addressed the specific question of the lethality of violence. The objective of bridging the psychology gap in terrorist violence research is clear. If written and verbal material can be used to better understand terrorist violence, then not only is it important for objective academic scholarship but it is also of possible importance to real world tools for counter-terrorism.

The organization of this paper is detailed as follows. Firstly, a brief but thorough literature review will examine the current trends and advances in terrorist scholarship on the topic of violence. Secondly, a theory of terrorist leadership and its effect on group behavior is established by examining the role of leadership, capabilities, and ideology on terrorist-group violent behavior. Thirdly, this paper details the methodology used in the collection of data and the operationalization of the variables that measure leader psychology, group capabilities, and group ideology. Lastly, the results of an empirical study are discussed alongside conclusions and implications about the results.

TERRORIST VIOLENCE WITHIN THE LITERATURE

Scholarly work on terrorism has borrowed from psychology for most of its existence in the area of social science (Crenshaw, 1986; Hoffman, 2006). Early research focused on pathological issues within individuals who commit terrorism. The paradigm of attributing terrorist actors to the likes of psychopathic political killers was both subjectively driven and scientifically flawed (Post, 2007). Criticism of this paradigm's ability to objectively understand political radicalization towards violence and also to normatively create solutions to such problems would lead to new schools of thought that emphasized the thesis that terrorists are actually acting in normal and rational ways (Crenshaw, 2007; Krueger, 2008; Post, 2007, 2010). With this renaissance of terrorism scholarship, the topics studied became increasingly diversified to the point that it has become in essence a single discipline as opposed to a sub-field of various behavioral schools (sociology, behavioral economics, political science, social psychology).

A simplistic approach to understanding the current trends within terrorism research can be divided into three main competing schools of thought. These are the rational actor/materialist models, the social/cultural models, and the psychological models of terrorist action and radicalization (Crenshaw, 1992). With a new emphasis on theory competition and more rigorous methodologies, terrorism studies have addressed a plethora of interesting and important questions regarding terrorism with the most obvious question being: What exactly is a terrorist (Crenshaw, 1992; Hoffman, 2006; Smelser, 2009)? Another widely studied topic within terrorism studies is that of terrorist-group behavior, and more specifically terrorist-group

violence outcomes (Crenshaw, 1987, 2007). The topic of terrorist violence is of importance to this study and from here onward this paper will discuss the current trends within the field that address issues of violence.

Terrorist Violence: A Topic Divided

If scholars have trouble agreeing on the origins of radicalization and the logic of terrorist action, then it should be expected that this debate is also relevant to the issue of terrorist violence lethality. There are three main arguments within the lethality debate which each bring some insight into the variance of lethality between terrorist organizations. These theories contend that capability, rational strategy, and ideology all play a role in determining lethality outcomes. Another and more recent development is the idea that individual psychology might play a role in violence levels (Hermann & Sakiev, 2011; Walker, 2011). While the literature continues debate on the main mechanisms that enable lethality, it does agree that terrorist organizations do show a degree of variance in how lethal they make their violent actions (Enders & Sandler, 2000, 2002; Gunaratna, 2013; LaFree, 2012).

Rational Actor Model

One intuitive response to previous notions about terrorist irrationality was the notion that like all actors, terrorists will act rationally to maximize their gains and to maintain their relative capabilities (Shughart & William, 2011). Violence is seen as a mechanism that is rationally used

against targets for strategic purposes (Kydd & Walter, 2006; Pape, 2003a). Terrorist organizations use violence as a form of costly signaling towards target states and perceived constituencies (Kydd & Walter, 2006). The rationality behind variable levels of lethality comes from the dilemma that terrorist organizations face when combating states in an asymmetrical fashion. Terrorist organizations want to use the "correct" level of violence in which to influence concessions (Krueger, 2008). The rational terrorist decision maker will curb the level of violence to a point in which the costs suffered by their targets is enough to influence concessions (Behlendorf, Lafree, & Legault, 2012; Frey, Luechinger, & Stutzer, 2007; Krueger, 2008) but not enough to push their target state into a corner they must fight out of or to alienate their perceived support base (Crenshaw, 2007; Gould & Klor, 2010; Krueger, 2008).

Another group of rational choice scholars takes a more nuanced approach when studying terrorist violence. These studies acknowledge that there are variable individual components of terrorist organizations. This updated theory addressed the question of why certain organizations will use violence to spoil possible concessions (Kydd & Walter, 2006). Moderate members of such groups will use violence until moderate concessions can be issued in return and extreme members of organizations will view moderate concessions as being a loss of utility[1] (Bueno de Mesquita, 2005; Kydd & Walter, 2006). These extremist organizations have a higher threshold for utility when it comes to concessions and will logically continue violent action in an asymmetrical conflict and will often ramp up the level of violence (Bueno de Mesquita, 2005). In fact, for this model it is more logical for terrorist organizations to increase the level of violence as a

[1] This approach is more intuitive than the standard rational actor model. Most terrorism scholars would agree that a pure rational actor model cannot generally predict the strategy of all terrorist organizations and that different groups should have at least variable utility functions depending on their idiosyncratic context.

mechanism to invite disproportionate response from the target state (Lake, 2002; Newman, 2012). Here, terrorist organizations prefer extreme levels of violence in an effort to indirectly radicalize their constituent populations. Higher thresholds of violence can also be used as a tool to outbid competing groups for the support of the population[2] (Kydd & Walter, 2009; Lake, 2002; Nemeth, 2013).

Organizational Capabilities

In the area of capability studies there is some overlap with rational expectations, but it is unique enough to warrant attention here. The capabilities argument states that much of the variance in level of lethality from terrorist attacks is attributed to organizational capability. Rational choice overlaps with this argument when power differentials are at play. More capable groups have the ability to push violence thresholds without fearing a loss of utility from state counter actions (Frisch, 2012; Gould & Klor, 2010). These are often characterized as insurgencies who often legitimately compete with the state for control over territory and resources (Frisch, 2012; Hoffman, 2006). Even smaller groups that have lower organizational capability are capable of sustained violent action when state institutions lack the ability to coordinate appropriate responses against terrorist groups (Brands, 2011). Another component is the intersection of terrorist organizations and criminal organizations (Cornell, 2008; Shelley et al., 2005). Cooperation with criminal groups can increase organizational capabilities through funding, training, and adoption of new strategies (Picarelli, 2012).

[2] Outbidding in this sense does not mean that these groups use violence to compete with the state for popular support but to use more violence than competing terrorist/social organizations. For example: If group A attacks target enemy more often and more lethally then potential popular support will gravitate towards group A.

Perhaps the most convincing study on organizational capabilities and terrorist lethality comes from research on the effects of group level capabilities on group lethality (Asal & Rethemeyer, 2008; Asal et al., 2009). Asal and Rethemeyer found that group size, degree of territorial control, and number of alliances were the most important organizational indicators of increased lethality[3] (Asal & Rethemeyer, 2008). Other studies have shown support for the influence of group power and capabilities on lethality of attacks. Groups that increase in size and experience were shown to not only produce more lethal attacks but also to be more frequent in their attacks[4] (Clauset & Gleditsch, 2012; Clauset & Wiegel, 2010). When groups are able to attract a larger and more diverse set of recruits, there is a higher probability of gaining both high quality recruits, and the ability to transfer this expertise will also increase over time (Clauset & Gleditsch, 2012). As one would expect with a legitimate military organization, increases in manpower, experience, and material capabilities increase the ability to inflict damage.

Ideology

Ideology is an integral component of much terrorism scholarship and often overlaps with psychological models of terrorism strategy and violence (Crenshaw, 1986, 1987; Hoffman, 2006). Like the argument for capabilities, the research on the connection between ideology and level of violence seeks to improve upon generalizing rational choice model of terrorism by using individual group differences as explanatory variables for lethality outcomes. Early research by

[3] The significance of these findings is in relation to other hypothesized mechanisms. The authors found that these three components were better predictors of lethality than state support, organization age, and host country status.
[4] It should be pointed out that Asal & Rethemeyer found that organization age was not a significant indicator of lethality in opposition to Clauset's finding that it is. This could be the production of methodology differences but it does indicate that the variance caused by capabilities of groups is still up for debate.

Hoffman conceptualized ideology as having a direct connection with the level of violence that terrorist-groups would be willing to engage with (Hoffman, 2006). Leftist groups were seen as the least likely to commit highly lethal attacks because they prefer to engage discriminate and targeted action against perceived criminals of the state or the market. Ethno-nationalist/separatist groups fit within the category mentioned before by rational choice theorists. These groups seek a "tolerable" level of violence that destabilizes the state but does not alienate the support base. The third ideology type is religious/fundamentalist groups. These groups were predicted to be the most indiscriminate and committed the most violence in their actions because the tool of violent served as a mechanism of creating a "paradise outcome"[5] (Hoffman, 1995).

In recent quantitative research there has been empirical support for the idea that religious ideologies cause terrorist groups to become more lethal. Going back to the organization research that was written by Asal & Rethemeyer (2009), it was found that religious groups were more likely to cause more casualties. Leftist groups were at the lowest end of lethality with nationalist-separatist groups sitting in the middle, just as Hoffman hypothesized (Asal & Rethemeyer, 2008; Hoffman, 2006). Some empirical research also indicates that ideology may be a consistent factor in determining what kind of targets terrorist-groups attack and how lethal those attacks might be (Asal et al., 2009; Wright, 2013), with religious groups typically being more likely to target civilians and non-combatants with more lethal violence. While ideology has gained some empirical support, there is still debate on whether religious groups really are more lethal. In a study on the effect of ideology's role in terrorist lethality, James Piazza (2009) found that Islamic

[5] For some religious groups the annihilation of perceived enemies in both the physical and ideological realm is inherently a part of their political objectives.

based groups differed in objectives and subsequently varied in the lethality of their violence[6] (Piazza, 2009). It was found that there are statistical and qualitative differences between Al-Qae'da and other Islamic terrorist organizations. Piazza found that Al-Qae'da and Al-Qae'da affiliate organizations were more likely to show increased lethality in their violence compared to other Islamic oriented terrorist organizations (e.g. Hamas, Hezbullah, etc.), and when controlling for only Al-Qae'da and Al-Qae'da affiliates, Islamic terrorist organizations were not statistically likely to be more lethal than other types of terrorist-groups. This indicates that while ideology continues to be a salient characteristic of terrorist organizations, it should be expected that for some ideological groupings there is a degree of qualitative difference between likeminded groups.

Psychological Model(s)

The literature that has been examined so far has been diverse yet shares a common assumption. These trends have examined terrorist violence as a behavior that is motivated from the top-down, meaning that their actions are driven by the structure of the environment around the individual. Psychological theories of terrorist violence examine the opposite end of this idea by focusing on individual factors that lead to violence[7] (Victoroff, 2005). While it is clear that both top down and bottom up approaches to examining behavior outcomes give valuable insight into the level of violence, it is often the case that these two approaches are intertwined

[6] Piazza also found that many Islamic/Religious groups were better characterized as nationalist-separatist groups. This means that the coding and conceptualization of group ideologies in the BAAD data used by Asal and Rethemeyer was potentially flawed.

[7] As noted earlier, many of the top down approaches use elements of psychological theory but still maintain the primacy of structural conditions on the actions of the agent.

academically and possibly rightly so (Crenshaw, 2002). The main difference for scholars who choose to adopt psychological models is that group-level models are often underspecified even when borrowing from psychological theories[8] (Crenshaw, 2002).

The classic psychological model is that of psychoanalytic theory. These scholars used identity theory, narcissism theory, and paranoia theory alongside a framework of dynamics (adult psychology), phenomenology (action), and genesis (formation) (Kernberg, 2003a; Victoroff, 2005). Previous studies came to the conclusion that young people who resorted to political violence were seeking to create a stable identity or trying to procure an element of self-worth (Crenshaw, 1986; Olsson, 1988; Taylor & Quayle, 1994). Another source of terrorist violence is the potential for narcissistic rage that fuels hatred at a perceived object of humiliation (Akhtar, 1999; Crayton, 1983). The last segment of psychoanalytic explanations for violence is that of psychopathological paranoia. These individuals who exhibit paranoia tendencies use their distrust of perceived enemies to justify violent actions (Post, 1990, 2007). While these theories are based in rich academic traditions reaching back to Freud and Erickson, they are hard to test and examine objectively (Victoroff, 2005). In the light of these problems more contemporary theories have sought to examine emotion and cognition.

Two important developments in contemporary psychology have been underutilized in terrorism studies: these are cognitive theory and emotion. Cognition refers to an individual's way of thinking that includes biases, prejudices, and tendencies (Victoroff, 2005). A highly cited psychological variable in studying terrorist violence is the idea of cognitive capacity/complexity.

[8] The prime example is that of rational choice theory. Rational choice takes into account individual utility but simultaneously assumes that all individuals rationally gravitate towards the strategy that will maximize their outcomes.

Evidence has shown that lower levels of cognitive capacity are correlated with behavior that is aggressive and violent (Bryant, 1984; Victoroff, 2005). This idea of lower cognitive capacity leading to violence is also evident in political leadership studies (Post, 2003; Satterfield, 1998; Schafer & Walker, 2006). In relation to the topic of this study, there has been interesting applications of Leadership Trait Analysis and Operational Code to predicting terrorist violence (Hermann & Sakiev, 2011; Walker, 2011). Both studies found that measureable cognitive traits varied before and after violent behavior. Another trend deals with the fundamental nature of emotional reasoning in terrorist violence. Humiliation of an individual and the connected desire for revenge are potential predictors of violence (Stern, 2003; Victoroff, 2005). Scientific research has supported these claims by showing that individuals generally derive emotional satisfaction through punishing those they believe to have violated social norms even at great cost to themselves (De Quervain et al., 2004).

The final aspect of contemporary psychological approaches to studying terrorist violence is that of the group process. Studies examining policy makers have shown that both the individual and the process of the group play a role in decision outcomes. Many scholars also acknowledge that terrorism is a significant group process (Crenshaw, 1986; Hoffman, 2006; Post, 2010; Victoroff, 2005). Membership in a terrorist organization is thought to free individuals from normative prohibitions on violence through a collective identity that alleviates the individual from blame when attacking the out-group (Crenshaw, 1986; Eubank & Weinberg, 1994; Hacker, 1983). It is also theorized that the influence of individual factors and group factors on violence is varied in the context of the situation (Friedland, 1992; Kernberg, 2003a, 2003b). Leadership psychology, individual member psychology, and the objectives/ideologies of

the group all affect the group process towards violence, and influence a coherent and collective view on violence towards the out-group (Crenshaw, 1986; Kernberg, 2003a).

THEORETICAL APPROACH

This study is grounded within the idea that terrorist leadership psychology can help explain organization lethality. Terrorist organizations could be studied in a similar fashion of a state, in the way that national leaders have an influence on state behavior. This is reasonable because many sub-national groups do exhibit some form of leadership function within the organization. Studies have also shown that the leadership function within terrorist organizations could be more important than what was previously believed in academia (Jordan, 2009; Price, 2012). Price found that groups whose leaders were targeted and killed by counter-terrorism actions were significantly more likely to become less durable over time (Price, 2012). Other theoretical work that addresses the psychology of the group states that leaders will often set up the cognitive disposition that the group will commonly hold (Crenshaw, 1986). Further evidence posits that this common cognitive adaption is a survival mechanism that influences retention and loyalty of individual members (Mullins & Dolnik, 2009).

Terrorist Leadership and the Group

The group identity becomes a salient part of the individual's perception through the values imparted by the leadership of a terrorist organization (Crenshaw, 2013; Post, 1990). There is considerable debate within terrorism scholarship about the actual utility of studying the leader within these organizations. The concerns with studying leaders are that many groups tend to follow the paradigm of leaderless resistance, and that the idea or goal is the most important

motivator of becoming active in political violence (Rapoport, 2001). This study acknowledges that many groups do follow a leaderless or networked organization structure, but that does not mean all groups are organized this way. Much scholarship has been dedicated to studying why terrorist leaders are essential components of group behavior and outcomes (Hermann & Sakiev, 2011; Price, 2012; Rapoport, 2001; Walker, 2011).

Leaderless networks and lone wolf terrorists have trouble creating and maintaining a cohesive strategy against their targets (Crenshaw, 1987; Rapoport, 2001). Other research found that terrorist violence is also affected by the loss of a leader (Jordan, 2009; Mannes, 2008). In terms of recruitment and retention, it is theorized that the leader has a role in cementing a common cognitive disposition throughout the membership of a terrorist group that helps to create a sense of cohesion and loyalty (Crenshaw, 1986). Other research has built off of the leadership loss literature by explaining the strategic value of having a leader in the group. Terrorist leaders commonly set the ideological and strategic disposition towards an opponent (Crenshaw, 1986; Locicero & Sinclair, 2008). Terrorist leaders also make important group-level decisions that affect funding and logistic support towards member operations (Geltzer, 2011; Shapiro, 2007). In terms of violent action and lethality, there has been limited study on the influence of terrorist leaders. In previous examinations of leader speeches and statements, it was found that the psychology of leaders changed prior to attack periods and that this pattern was consistent over time (Hermann & Sakiev, 2011; Walker, 2011). This means that what the leader is saying publicly might be indicative of the group's violent behavior.

A Leadership-Based Model of Terrorist-Group Lethality

Regardless of the importance of the terrorist leader within the terrorist organization, it is still only one element that affects the violent behavior of terrorist groups. This study specifies an updated model of the mechanisms which influence group attack lethality. As discussed in the literature review it is apparent that both ideology and group capability affect the lethality of terrorist attacks (Asal & Rethemeyer, 2008; Clauset & Gleditsch, 2012; Hoffman, 2006; Piazza, 2009). This study proposes a model that includes the individual level psychology of terrorist leaders as an essential mechanism that affects attack lethality. Figure 1 below details the model proposed:

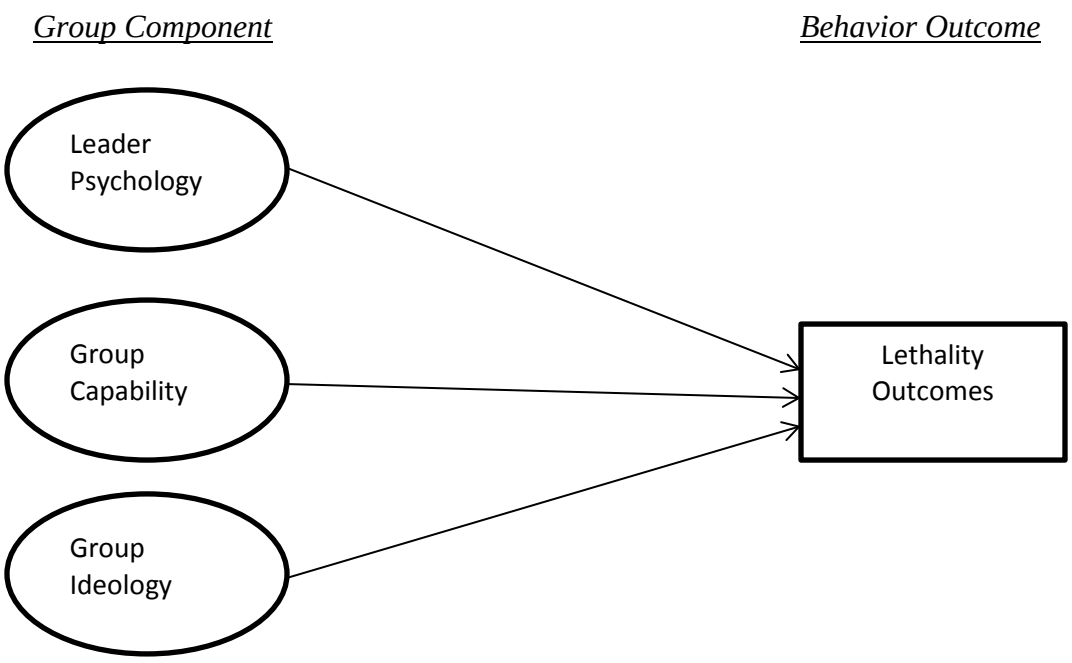

Figure 1 A Model of Group Lethality

The group lethality model is simple yet it addresses a key gap in current scholarship concerning terrorist violence lethality. It adds the individual leaders of groups which is an improvement over previous models that only include material and broad ideological variables. This model is also the first quantitative study of terrorist leader psychology and its effect on the lethality of violence. In reality, the group components of the model are most likely influencing each other as well. This relationship between leader psychology and group ideology and capabilities might be an interesting topic for future study but for the sake of this study and its question the model will remain a simple theory of the mechanisms which influence violence lethality.

ASSESSING LEADER PSYCHOLOGY

If it is established that both the leaders of terrorist groups and their psychological characteristics are important, then the question that is left is: how can the psychology of terrorist leaders be studied? Scholarship within political psychology and foreign policy decision making is helpful in examining the role of leaders in the context of policy outcomes (Post, 2003; Schafer & Walker, 2006; Snyder, 1962). Two programs that have come out of contemporary scholarship are Operational Code "OpCode" (Leites, 1951; Walker, Schafer, & Young, 1998) and Leadership Trait Analysis "LTA" (Hermann, 2005). Both programs analyze speech material through coding schemes that create cognitive and personality variables for the individual who spoke or wrote those words.

In the realm of terrorism studies these programs have been seldom used. Both Walker and Hermann used their programs with mixed results in an attempt to predict patterns of violence based off speech material (Hermann & Sakiev, 2011; Walker, 2011). Both studies found that psychology changed from group to group and from pre to post attack periods. Another study used both LTA and OpCode measurements of both national leaders and terrorist leaders and found that the groups were statistically distinct from each other (Lazarevska et al., 2006). Overall, OpCode and LTA have had some success in answering questions within terrorism studies.

Operational Code

Operational Code examines the basic cognitive disposition of the individual being studied (Schafer & Walker, 2006; Walker et al., 1998). These measurements are separated into five philosophical beliefs and five instrumental beliefs (Schafer & Walker, 2006; Walker et al., 1998). The first philosophical belief (P1) examines how the individual perceives the nature of the political universe by stating whether it is hostile or friendly. The second philosophical belief (P2) examines how an individual views the eventual realization of their values and aspirations by giving measurements indicating optimism or pessimism in respect to these values and aspirations. The third philosophical belief (P3) gives a measurement of how an individual views the predictability of the future. The fourth philosophical belief (P4) gives a measurement of how an individual feels about their control over historical development and their ability to shape developments. The fifth and last philosophical belief (P5) measures how one views the role of "chance" in human affairs and historical development.

The first instrumental belief (I1) examines the strategic orientation of the individual and whether they adopt a cooperative or competitive disposition. The second instrumental belief (I2) measures how an individual believes in pursuing a goal most effectively. The third instrumental belief (I3) measures how an individual calculates, controls, and accepts the risks within political action. The fourth instrumental belief (I4) shows how an individual views the best "timing" of action to advance their interests. The fifth and last instrumental belief (I5) examines how an individual views the utility and role of different strategies for advancing their political interests.

The cognitive dispositions of a terrorist leader should be indicative of group belief and behavior (Crenshaw, 1986). As stated earlier in this paper, terrorist leaders can help determine the psychological characteristics of the group by advancing beliefs about the out-group and how the group should pursue political goals (Crenshaw, 1986; Kernberg, 2003b). The idea that terrorist leaders shape group psychology lends itself well to operational code by connecting group behavior with leader psychology. These beliefs can be measured by using the first philosophical and the first instrumental variables detailed earlier in this section. These main variables are key indicators the philosophical and instrumental beliefs of individuals (Schafer & Walker, 2006).

Philosophical Beliefs

Walker and Schafer define philosophical beliefs as "*What is the essential nature of political life? Is the political universe essentially one of harmony or conflict? What is the fundamental character of one's political opponents?"(*Walker et al., 1998). Individuals who view the political environment around them as being conflictual, will most likely be pessimistic about achieving political goals, view the future as being less predictable, view themselves as having less control over historical development, and assign a higher role to chance (Walker et al., 1998). Likewise, individuals who view conflict as less of a fixture of the political environment are more likely to be optimistic about achieving goals, and will view themselves as having more control over historical development (Walker et al., 1998).

Terrorist leaders and members are characterized as individuals who have decided that conflict is the only available or even appropriate choice in pursuing political goals (Bueno de Mesquita, 2005; Kernberg, 2003a, 2003b; Lawrence, 2010). Individuals who choose to pursue violent terrorist behavior see the environment and the actors around them as competitive opponents (Bueno de Mesquita, 2005; Kydd & Walter, 2006; Kydd & Walter, 2009; Nemeth, 2013). This research indicates that groups will escalate violent behavior in an effort to increase their competitiveness against the state or rival sub-state political actors. Philosophical beliefs lead to the first hypothesis posited by this study:

H1: As terrorist leaders view the world as being more conflictual (P1), the lethality of terrorist violence will increase.

Terrorist-leaders with a more conflictual philosophical disposition will cause the group to increase the lethality of terrorist violence. If a leader feels that the competition represented by rival organizations or the state directly threatens the goals of their organization, the group will seek to raise the lethality of violence as a means of rising above the competition (Crenshaw, 1986, 1991).

Instrumental Beliefs

Walker and Schafer define Instrumental Beliefs as "*What is the best approach for selecting goals or objectives for political action?"(*Walker et al., 1998). Instrumental beliefs are intrinsically related to an individual's philosophical beliefs (Walker et al., 1998). Leaders who are optimistic about the political environment about them will most likely believe that strategy should be limited in scope, that tactics should be flexible, and risks should be calculated and conservative (Walker et al., 1998). Leaders who are optimistic about the political universe are likely to create grand strategic goals, have inflexible tactics, and accept large risks (Walker et al., 1998). Instrumental beliefs lead to the second hypothesis posited by this study:

H2: As terrorist leaders become more competitive in strategy (I1), the lethality of terrorist violence increases.

The second hypothesis examines how a terrorist leader's strategic orientation affects violence. If a leader decides that competitive behavior is the best way to pursue political goals then the groups violent behavior is likely to escalate (Kydd & Walter, 2006; Pape, 2003b). On the other hand, if the leader determines that a more cooperative strategy or a shift towards non-violent or purely political strategies are the best way to reach political goals then the group

should show a decline in violent behavior as its members begin to adopt this change in strategic orientation.

Coding and Operationalization

Both Philosophical Belief (P1) and Instrumental Belief (I1) are created by using the Verbs in Context System (VICS). VICS examines six attributes for the verbs used in the analyzed in the verbal content. These attributes are subject, verb category, domain of politics, tense of the verb, intended target, and the context (Schafer & Walker, 2006). Verbs that do not have a political meaning or fail to fit in any of the six categories are coded as neutral and discarded (Schafer & Walker, 2006). Both belief variables are created by taking the balance between the frequency of negative and positive verbs used by an individual. This means that the coded measurement of both variables are created by subtracting the total number of negative verbs from the total number of positive verbs and then dividing the subtracted number by the total number of negative and positive verbs coded in the document (Schafer & Walker, 2006)

The resulting measurement is best understood as a point within a continuum from positive one to negative one with zero being completely mixed. For Philosophical Belief, a positive one would represent that the individual views the political universe as being very friendly and a negative one would indicate that the individual views the political universe as very hostile. For Instrumental Belief, a positive one would indicate that the individual views a cooperative direction is the best strategy, and a negative one would indicate that the individual views a competitive direction as the best strategy (Schafer & Walker, 2006).

Leadership Trait Analysis

Leadership Trait Analysis measures personality traits through text and verbal analysis (Hermann, 2005). Belief in the ability to control events (BACE) measures how the individual perceives his or her own ability to influence events. Need for Power (PWR) measurements indicate individual concern for maintaining or creating power and influence. Conceptual complexity (CC) indicates how an individual perceives ambiguity in the environment around them. Self-confidence (SC), measures how an individual perceives self-importance or ability to cope with the environment around them. Motivation for seeking office (TASK) indicates whether an individual moves a group towards completion of tasks or focuses on building relationships. Distrust of others (DIST) measures feelings of doubt and wariness in other and others actions. Lastly, In-group bias (IGB) measures the degree with which the individual holds his or her own group as being prominent within the environment.

The personality measurements that are used for hypotheses three through four were chosen because they represent traits that are increasingly cited within terrorism scholarship (Victoroff, 2005). Of the LTA traits discussed above, four of them stand out within the literature (Crayton, 1983; Kernberg, 2003b; Post, 2010; Victoroff, 2005). Self-confidence, need for power and influence, distrust of others, and in-group bias are commonly cited as psychological mechanisms that influence an individual to pursue violence. The section below defines and analyzes each of these four traits in the context of Hermann's Leadership Trait Analysis and then connects these traits to the terrorism psychology literature.

Self-confidence

Hermann defines Self-Confidence as: *"one's sense of self-importance, an individual's image of his or her ability to cope adequately with objects and persons in the environment."*(Hermann, 2005). Self-confidence measures how an individual perceives his or her self within the context of the environment around them (Hermann, 2005). Self-confidence is scored by examining first person pronouns within the individual's verbal material. The pronoun is coded as indicating self-confidence when the individual refers to themselves as instigating an activity, being an authority figure or when the individual is being the recipient of positive responses from another person or group (Hermann, 2005). Self-confidence is operationalized by calculating the percentage times the personal pronoun is coded as indicating self-confidence.

Individuals or leaders with high self-confidence accept the environment around them and are generally more satisfied with their status and their position. Individuals with low self-confidence are susceptible to the changes of the context within their surrounding environment. They seek out information that will help inform on ways to increase their status or how to adapt to the changes within the environment. Individuals with low self-confidence often seek to become members of political groups in an effort to enhance their self-perception (Hermann, 2005). This trait leads to the third hypothesis posited by this study:

H3: As terrorist-leader self-confidence decreases, the lethality of terrorist violence increases.

Self-confidence plays a salient role in individual radicalization and the choice to pursue political violence (Borowitz, 2005; Kaplan, 1978). Terror Management Theory posits that perceived and real humiliation, domination, and injustice threaten the self-confidence of individuals (Greenberg et al., 1990; Pyszczynski, Rothschild, & Abdollahi, 2008). The resulting damage to self-confidence can lead to individual or collective acts of violence against an "evil" out-group as a mechanism for dealing with the damaged self-confidence (Bar-Tal, 2001; Pyszczynski et al., 2008). Leaders' with low self-confidence should influence increased group violence behavior from their respective organizations. Having this damaged self-confidence creates what can appear to be highly irrational and lethal violent action against their enemies (Bar-Tal, 2001). While this escalation of violence may seem irrational to the outside observer, it is self-perceived as strategic behavior that not only helps to improve the self-confidence of an individual leader but also that of the group as a whole (Greenberg, Arndt, Kruglanski, Higgins, & van Lange, 2011; Nagl, Amos, Sewall, & Petraeus, 2008).

Need for Power and Influence

Hermann defines Need for Power and Influence as *"A concern for establishing, maintaining, or restoring one's power."*(Hermann, 2005). Leadership trait analysis scores this trait by finding statements that display strong and forceful action, advice or assistance when it is not solicited, attempts to regulate another person or group, attempts to persuade, bribe, or argue, endeavors to impress or gain fame, and when an individual is concerned with reputation or

position (Hermann, 2005). The operationalization of this trait is created by taking the percentage of times a verb is used in the contexts stated above.

Leaders with a high need for power and influence are generally motivated to want to manipulate the environment around them. These leaders are skilled at sizing up situations and also have a good perception of appropriate tactics for these situations. They also tend to also pursue goals at any cost, often with little regard for members of their in-group. To keep power within their respective organizations, these leaders strive to create a strong sense of conformity within their in-group that will ensure the adherence of group members to the ideals espoused by the leader and the organization (Hermann, 2005). This emphasis on conformity is often combined with a highly charismatic leadership that can create highly loyal subordinates (Hermann, 2005) A high need for power will also cause leaders to push the boundaries of a course of action, which often results in a misjudgment of their political opponents (Hermann, 2005).

Need for power is a commonly cited motivation within terrorist psychology research. Individuals can be motivated to join terrorist organizations or pursue political violence because they crave self-glorification or an improvement in the social or political positions they find themselves occupying (Cottee & Hayward, 2011). Terrorists pursue violence as a means of advancing their self-narrative, which includes a pursuit of glory and power, by rejecting the legitimate political and social forces that deny the individual's ability to gain power and influence (Cottee & Hayward, 2011; Post, 1990). This trait leads to the fourth hypothesis posited by this study:

H4: As terrorist-leader need for power and influence increases, the lethality of terrorist violence increases.

An individual with a high need for power create narratives which can promote aggression against the source of a perceived insult or roadblock to self-gratification (Bushman & Baumeister, 1998). Terrorist-leaders create similar idealized narrative which targets the source of threat and insult to the leader and his or her organization that is passed down to the members of a terrorist organization. A high need for power can also escalate the level of terrorist violence as terrorist-leaders seek to influence and out compete the actors which represent power rivalries either at the sub-national level or within the state (Kydd & Walter, 2009). As stated before, a leader with a high need for power will also often push the boundaries of a course of action (Hermann, 2005). This means that the perceived irrational escalation of violence lethality against the state could be indicative of a terrorist leader who has misjudged how far their organization can feasibly test the limits of their ability to extract concessions from a target state (Bueno de Mesquita, 2005; Crenshaw, 1991; Kydd & Walter, 2006; Nagl et al., 2008).

Distrust of Others

Hermann defines Distrust of Others as "*A general feelings of doubt, uneasiness, misgiving, and weariness about others and an inclination to suspect the motives of others.*" (Hermann, 2005). Leadership trait analysis scores distrust by examining nouns and noun phrases and how they reference persons other than themselves in terms of doubt, distrust, weariness, misgivings, uneasiness, and whether that other represents something that is a detriment or an

agent of harm towards the individual of his or her allies (Hermann, 2005). Distrust of others is operationalized by coding a noun as being indicative of distrust and then taking the percentage of times an individual indicates distrust throughout their verbal material (Hermann, 2005).

Individuals with a high level of distrust will are generally suspicious of the actions of others, often characterizing those actions as competition against their position or ideology (Hermann, 2005). Individuals with a high level of distrust perceived their position as being a zero-sum game that leads these individuals to perceive other actors as having systemic ulterior motives that threaten the power or livelihood of the individual. These individuals will also create a culture of loyalty by creating an environment in which criticism and dissent can lead to punishment for the unfortunate subordinate (Hermann, 2005). Finally, these leaders will take steps to sabotage or disrupt what they perceive as plans to hurt the individuals position or cause (Hermann, 2005). This trait leads to the fifth hypothesis posited by this study:

H5: As terrorist-leader distrust increases, the lethality of terrorist violence increases.

Individuals who chose to become terrorists are seen as being distrustful of mainstream political and social forces and their ability to rectify issues pertaining to domination and injustice (Cottee & Hayward, 2011; Crenshaw, 1981; Greenberg et al., 1990). This distrust drives individuals into terrorism or terrorist groups because they fear the motives of the institutions within their political environment (Crenshaw, 1981; Hosking, 2009; Post, 2007). Distrust also influences terrorist group violence in terms of competition and bargaining. Groups often see the legalistic approach to conciliation and concession as being empty in gesture and unable to remedy the inherent distrust a terrorist group harbors towards state institutions (Corsi, 1981;

Kydd & Walter, 2009). Leaders of terrorist groups who distrust the motivations of a target state will create violence in an effort to disrupt the ulterior plans of a target state to dismantle the terrorist group or political movement (Bueno de Mesquita, 2005).

In-group Bias

Hermann defines In-group Bias as *"View in which one's own group (social, political, ethnic, etc) holds center stage."* (Hermann, 2005). In-group bias represents a strong emotional attachment to one's own group and an emphasis on maintain the status of one's own group (Hermann, 2005). In-group bias is coded by examining words or phrases that refer to the individuals own group. If the individual uses modifier words that are favorable to their group or indicates a need to main group honor and identity, than the phrase is scored for in-group bias. The trait is operationalized by calculated by taking the percentage of times an individual uses a phrase that is coded for in-group bias.

Individuals with a high in-group bias will be interested in maintaining a distinct and separate identity for his or her group (Hermann, 2005). These individuals become concerned they feel that other groups seek to meddle with the internal affairs of his or her in-group. Individuals with high in-group bias will also associate the group with being an integral component of self (Hermann, 2005). These leaders prioritize internal cohesion by creating an environment where loyalty is an essential component in advancement through the in-group's organization structure. Those high in in-group bias will also create external scapegoats for the in-group's problems (Hermann, 2005). This creates a highly mobilizing message for in-group

members that creates aggressive behavior against the out-group enemy (Hermann, 2005). This trait leads to the sixth and final hypothesis posited by this study:

H6: As terrorist leader in-group bias increases, the lethality of terrorist violence increases.

Individual in-group bias is a precursor for intergroup conflict and terrorist group violence (Bar-Tal, 2001; De Dreu et al., 2010). Individuals who decide to join terrorist organizations have been shown to exhibit higher levels of in-group bias than individuals who share the same ideological or group affiliation but are not members of terrorist organizations (Smith, 2008). Leaders' of terrorist organizations are aware of institutional threats and biases against their social and political in-groups (Shayo & Zussman, 2011). Terrorist leaders are then able to make efficient use of perceived and real affronts to the in-group as a mechanism to mobilize violence against the out-group (Castano, Yzerbyt, Paladino, & Sacchi, 2002; Navarrete, Kurzban, Fessler, & Kirkpatrick, 2004).

METHODOLOGY AND RESEARCH DESIGN

As stated at the beginning of this paper, the objective of this study is to examine the potential effect of terrorist-leader psychology on the lethality of terrorist violence. Using a novel method of examining the speech of terrorist-leaders to create measurements of their psychology, it is possible to build a model that now specifies distinct individual-level variables within empirical models of terrorist-group behavior. This section deals with the elements of research design and methodology that will be used for three objectives. The first is to create a new source of data that will contain measurements of terrorist-leadership psychology for terrorist organizations. The second objective is to detail the operationalization of both lethality (dependent variable) and psychology (independent variable) while also describing the operationalization of a variety of controls. The final objective is to describe a comprehensive statistical model that can be used to test the usefulness and strength of terrorist-leader psychology in predicting the lethality of violence for terrorist groups.

Data Collection

The data used in this study comes from three sources to create a new data set. Firstly, two existing data sets are utilized for this study. The dependent variable comes from the Global Terrorism Database (LaFree & Dugan, 2004, 2007), an open source data set that provides event level data for terrorist attacks from 1970 to 2010.[9] The specific data that comes from the GTD are the annual amount of attacks committed and casualties inflicted by a terrorist organization. The second source of data is the Big Allied and Dangerous Database, which was created for studying organizational predictors of group lethality. It contains variables that measure organizational characteristics such as group capability and group ideology[10]. This data is the foundation for the controls used for this study, as they have shown in the past to be useful in predicting the lethality of terrorist organizations (Asal & Rethemeyer, 2008; Asal et al., 2009; Piazza, 2009).

The final source of data comes from terrorist-leader verbal material. This collection is unique to any previous published data in terrorism studies and utilizes open source primary data from terrorist organizations. Verbal material for terrorist leaders comes from speeches and public communiques that were written by either an identifiable leader of a terrorist organization or, in lieu of no central figurehead, a leadership council. The data is open source and is available in collected books, academic archives, group websites, or government databases either in print or

[9] More information about the Global Terrorism Database can be found at http://www.start.umd.edu/gtd/.
[10] More information on the Big Allied and Dangerous Database can be found at http://www.albany.edu/pvc/data.shtml.

online. Each leader must have at least four thousand words or more collected per year to confidently have that measurement be included in the analysis. These data are the main source for creating operational independent variables, which are terrorist leadership psychological characteristics.

Variable Descriptions and Operationalization

Unit of Analysis

The unit of analysis for this study is Terrorist-Group Year. Each group represents a cross-section and each year represents a temporal point. As discussed earlier, this type of data calls for an estimation procedure that can handle time-series cross-section data[11]. The groups included in this analysis are shown below in Table 1. In total, eleven sub-state terrorist organizations are represented in the empirical portion of this study. These groups were chosen for both substantive and practical reasons. The groups, unlike the majority of lesser-known terrorist organizations[12], have clearly defined leaderships. These groups also have relatively active and public leaders, which is integral for the collection of verbal material. The issue of adequate verbal material for the creation of the main independent variables also represents an issue of practicality. These groups were also chosen because of the abundant verbal material that they produce in comparison to smaller groups.

[11] Not every group will exist at every temporal point from 1991 to 2011 (Example: The LTTE ceased to exist in 2010). This means that some groups will be included more so than others.

[12] There is much debate within the terrorist organization literature on the differences between hierarchical and networked organization structures. Many smaller terrorist-groups do not have a well-defined leadership and depend more on autonomous cells for operations.

Table 1 Included Sub-State Terrorist Organizations

Group	Description
Irish Republican Army (IRA)	Irish republican paramilitary organization that seeks to remove Northern Ireland from the United Kingdom and bring about an independent republic encompassing all of Ireland.
Al-Qae'da (AQ)	Global militant Islamist and takfiri organization founded by Abdullah Yusuf Azzam and Osama bin Laden in Peshawar, Pakistan.
Ansar al-Shari'a	Al-Qaeda in the Arabian Peninsula , also known as Ansar al-Shari'a ,is a militant Islamist organization, primarily active in Yemen and Saudi Arabia.
Basque Homeland and Freedom (ETA)	An armed Basque nationalist and separatist organization. The group was founded in 1959 and has since evolved from a group promoting traditional Basque culture to a paramilitary group with the goal of gaining independence for the Greater Basque Country.
Liberation Tigers of Tamil Eelam (LTTE)	A separatist militant organization that was based in northern Sri Lanka. Founded in May 1976 by Velupillai Prabhakaran, it waged a secessionist nationalist campaign to create an independent state in the north and east of Sri Lanka for Tamil people.
Hizbollah	A Shi'a Islamic militant group and political party based in Lebanon. Its paramilitary wing is regarded as a resistance movement throughout much of the Arab world and in Shiite communities.
Zapatista Army of National Liberation (EZLN)	A revolutionary leftist group based in Chiapas, the southernmost state of Mexico
Kurdistan Workers Party (PKK)	A Kurdish political and militant organization which fought an armed struggle against the Turkish state for cultural and political rights and self-determination for the Kurds in Turkey.
Hamas	The Palestinian Sunni Islamic or Islamist organization, with an associated military wing, theIzz ad-Din al-Qassam Brigades, located in the Palestinian territories.
Shining Path (SL)	A Maoist guerrilla insurgent organization in Peru.
Revolutionary Armed Forces of Colombia (FARC)	A Marxist–Leninist organization involved in the continuing Colombian armed conflict since 1964.

This leadership, from which the verbal material is taken, is involved in either the public political operation of a group and/or involved in a military capacity for these organizations. It should be noted that the number of cross-sections used here is smaller than the typical quantitative study of terrorist-group lethality. This means that the results are only generalizable to a specific grouping of terrorist-groups, mostly high-profile and established groups, as opposed to lesser known and less influential terrorist organizations. The results are also confined to a temporal range of 1991 to 2011, and may not be representative of the terrorist-group lethality when examining historical group behavior. While the data collected does rightly have these limitations, the data is still valuable. These groups represent highly influential sub-state actors in the realm of both domestic and international terrorism. The groups chosen for this study, while small in number, show considerable variance in both ideological type, objectives, and violent behavior over time and space. At the moment, the data used for this study is the most appropriate for testing hypotheses concerning leader psychology and terrorist-group lethality.

Dependent Variable

This study is interested in only the type of violence that would fit a definition of intentional use, or threat of use of violence, against civilians or non-combatants for a political or social objective (Sandler & Enders, 2007; Stanton, 2013). Fortunately, the Global Terrorism Database (GTD) clearly stipulates three attributes and three criteria for an incident to be included in the data. An incident must have three attributes present for inclusion (LaFree & Dugan, 2007): (1) The incident was intentional, (2) The incident must entail violence or a threat of violence, (3) The perpetrators of the incident must be sub-state actors. Alongside these attributes, two of three criteria must also be met for inclusion: (1) the incident must be aimed at attaining a political, economic, religious, or social goal (LaFree & Dugan, 2007). (2) There must be evidence of an intention to coerce, intimidate, or convey some other message to a larger audience than the immediate victims (LaFree & Dugan, 2007). (3) The incident must be outside the context of legitimate warfare activities and more particularly, be outside the parameters of standard humanitarian law when it comes to deliberate targeting of civilians or non-combatants (LaFree & Dugan, 2007).

The inclusion attributes and criteria of the GTD closely overlap with the definition of sub-state terrorism accepted by this study. While many of the groups examined by this thesis may also operate within the context of an insurgency, which means that some groups may conduct insurgent violence against enemy combatants within the temporal range of this study, the author has confidence that the dependent variable for this study accurately reflects terrorism

and not insurgent violence or actions that would constitute legitimate warfare. The mathematical operationalization for terrorist lethality is a yearly count of fatalities inflicted by a terrorist-group per year. This operationalization is common in quantitative studies of terrorist-group lethality (Asal & Rethemeyer, 2008; Piazza, 2009).

Lethality of Terrorist Violence (DV) = # of Fatalities/Year

The lethality of violence is variable cross-sectionally and temporally dependent on differences between unique terrorist-groups, and changes over time for each specific group.

Independent Variables

The main independent variables are the six psychological dispositions discusses earlier in the theory section of this paper. The quantitative measurements of the psychology variables are created through a program called Profiler Plus. Profiler Plus was created by Social Science Automation (Lazarevska et al., 2006; Schafer & Walker, 2006) [13]. Profiler Plus creates these psychology variables by examining verbal material taken from terrorist leaders. More specifically, these variables are coded by the Verbs in Context System (VICS) and the Leadership Trait Analysis (LTA) coding modules (Hermann, 2005; Schafer & Walker, 2006). Both coding modules analyze the verbal material that is input in Profiler Plus and exports them to a spreadsheet in Microsoft Access for each document scored and coded.

[13] Profiler Plus has a variety of coding schemes but LTA and OpCode were chosen as they have shown demonstrated usefulness and reliability in examining leaders in international studies topics. Please see "http://socialscience.net/default.aspx" for more details on Social Science Automation and Profiler Plus.

The six independent variables are briefly reiterated below[14]:

Philosophical Beliefs (P1): *What is the essential nature of political life? Is the political universe essentially one of harmony or conflict? What is the fundamental character of one's political opponents? (Hostile or Friendly)*

Instrumental Beliefs (I1): *What is the best approach for selecting goals or objectives for political action? (Conflict/Cooperation)*

Self-Confidence: *indicates one's sense of self-importance, an individual's image of his or her ability to cope adequately with objects and persons in the environment around them*

Need for Power and Influence: *indicates a concern for establishing, maintaining, or restoring one's power or, in other words, the desire to control, influence, or have an impact on other persons or groups*

Distrust of Others: *a general feeling of doubt, uneasiness, misgiving, and wariness about others--an inclination to suspect the motives and actions of others.*

In-Group Bias: *indicates a view of the world in which one's own group holds center stage*.

[14] For a reminder about the discussion of the coding and operationalization of these psychological dispositions please refer to pages sixteen through twenty four of this document.

Control Variables

Capabilities

To give this study internal validity and to take into account other possible explanations for terrorist group lethality, a number of control variables are used in this study. Terrorism scholarship has been interested in the effect that both organizational capabilities and ideology have on behavior of terrorist organizations. Empirical evidence has shown that group lethality can be correlated with the organizational capabilities of terrorist groups (Asal & Rethemeyer, 2008). This builds off scholarship that promotes the intuitive argument that better capabilities will cause groups to commit more lethal and higher profile attacks against their targets (Acharya & Marwah, 2011; Crenshaw, 1987; Frisch, 2012). Because of this emphasis on organizational capability, the first set of controls come from the capability measurements in the Big Allied and Dangerous Database . The capability controls are described below.

Organization Size: *Ordinal level measurement of group size coded 0 for 0-100 members, 1 for 100-1000 members, 2 for 1000-10,000 members, and 3 for 10,000 or more members.*

Territorial Control: *Dichotomous measurement coded 1 is a group controls territory and 0 if a group does not.*

Alliance Connections: *Interval measurement that measures the number of known alliances a group has.*

These controls were chosen as all three were found to be significant predictors of terrorist attack lethality (Asal & Rethemeyer, 2008; Asal et al., 2009). Groups that have larger membership sizes, groups that control territory, and groups with a large amount of alliance connections are expected to show increased lethality in their violent behavior.

Ideology

Another source of control variables for this study comes from evidence that the ideology of groups also plays a role in determining the lethality of violence these groups commit. Both qualitative and quantitative scholars have found evidence that ideology may be a mechanism that increases or decreases the lethality of terrorist violence (Asal & Rethemeyer, 2008; Hoffman, 1995, 2006; Piazza, 2009). The ideological control measurements also come from the data published by Asal and Rethemeyer and the ideology measurements used are detailed below.

Religious: *Dichotomous measurement coded 1 is a group has a religious ideology and coded 0 if a group does not.*

Ethno-Nationalist: *Dichotomous measurement coded 1 is a group has a ethno-nationalist ideology and coded 0 if a group does not.*

Leftist: *Dichotomous measurement coded 1 if a group has a leftist ideology and coded 0 if a group does not.*

It is expected that religious and ethno-nationalist groups will show increased attack lethality compared to their leftist counter-parts. Terrorism scholarship has focused on ideological

differences in terrorist violence and it appears intuitive that religious groups and ethno nationalist groups are more lethal. Ethno-nationalist groups oftentimes have larger organizations (Hoffman, 2006) that enjoy the support of a broad constituency that makes these groups more lethal. Leftist groups are thought to have an opposite profile. Leftist groups are generally smaller and do not target a broad group of people, but will target specific elements of state they oppose (Hoffman, 2006).

Religious groups are unique because it is thought that their ideology is conducive to frequent high lethality attacks. Their religious orientation creates objectives that are not only political but also social in nature (Hoffman, 1995). This social component of religious groups create a need for the complete restructure of society based on changing the religious fabric of society, and the best way to do this might be to eliminate or coerce the elements of society that represent social and religious rivalries (Crenshaw, 1986; Hoffman, 1995; Jones, 2013). This strict black and white view creates a justification for extreme violence that is used to protect the security of both the group and the broad religious identity.

Method of Analysis

To test the aforementioned hypotheses this study utilizes a statistical experiment. This is done through a regression analysis utilizing a model of terrorist-leader psychology and group level control variables. These variables are used to fit a regression equation that represents an updated model of terrorist group lethality. Because the data is defined as a time-series cross-sectional dataset, the regression techniques used must account for the specific issues that come

with this kind of data. Using this analysis is superior to a normal cross-sectional or time series analysis in three ways (Beck, 2008; Podestà, 2002). Firstly it increases the number of analyzed cases and helps alleviate potential small n problems for an exclusively cross sectional or time series analysis. Secondly, it examines the effect that leadership psychology has on violence lethality over both time and group instead of only one or the other (Podestà, 2002). Lastly, it helps to correct for the violations of statistics assumptions in OLS analysis that lead to biased and inefficient coefficients (Podestà, 2002; Shor, Bafumi, Keele, & Park, 2007).

A final note about the statistical model is that the speech data that is collected per group year represents a potential endogeneity and simultaneity problem. If the verbal material used to create measurements of psychology is measured against the lethality data from the same year, it would be difficult if not impossible to realistically determine the direction of causation. To solve the endogeneity problem, the verbal material used to create the psychology measurements are lagged by one year. This means that the psychology of terrorist leadership will affect the lethality of terrorist violence in the subsequent year. This allows the study to show a clear direction of causation if a correlation is found between leader psychology and terrorist violence lethality.

The Models

This study will analyze three groupings of regression models to examine different nuances of terrorist leadership. The first grouping will analyze the entire data set, the second grouping will separately analyze units that have a singular leader and figurehead for the organization, and the third grouping will analyze only units that have a leadership council and

not a singular figurehead for the organization. This is done to examine the potential differences that a singular leader of a terrorist organization might possess as compared to a group that has multiple leaders in the same position of authority.

Each grouping will be examined through two rounds of regression analysis. The first round of equations will be a fully fitted model that uses philosophical belief, the LTA traits, and the structural control variables:

$$(1)\ Y(Lethality) = \beta_0 + \beta_1(P1) + \beta_2(Self - Confidence) + \beta_3(Need\ for\ Power) + \beta_4(Distrust) + \beta_5(Ingroup\ Bias) + \beta_6(OrgSize) + \beta_7(Territory) + \beta_8(Alliances) + \beta_9(Religious) + \beta_{10}(Leftist) + \beta_{11}(EthnoNationalist) + \varepsilon$$

The second round of equations will be a series of fully fitted models but with instrumental belief, the LTA traits, and the structural control variables:

$$(2)\ Y(Lethality) = \beta_0 + \beta_1(I1) + \beta_2(Self - Confidence) + \beta_3(Need\ for\ Power) + \beta_4(Distrust) + \beta_5(Ingroup\ Bias) + \beta_6(OrgSize) + \beta_7(Territory) + \beta_8(Alliances) + \beta_9(ReligiousDummy) + \beta_{11}(EthnoNationalistDummy) + \varepsilon$$

To make sure that the main independent variables in this study are not in overly correlated, a bivariate correlation analysis was performed and is presented in table 1 below.

Table 2 Bivariate Correlation Table | N = 104

Variables	Philosophical	Instrumental	Need for Power	Distrust of Others	In-Group Bias	Self-Confidence
Philosophical	1	0.2*	-0.27*	-0.32*	-0.08	0.11
Instrumental	0.2*	1	-0.12	-0.48*	0.03	0.03
Need for Power	-0.27*	-0.12	1	0.39	0.47*	-0.29*
Distrust of Others	-0.32*	-0.48*	0.39	1	0.12	-0.12
In-Group Bias	-0.08	0.03	0.47*	0.12	1	-0.23*
Self-Confidence	0.11	0.03	-0.29*	-0.12	-0.23*	1

* Denotes a statistically significant correlation

None of the independent variables reach above a .5 correlation according to a pairwise correlation test. As suspected, Philosophical belief and Instrumental belief are significantly correlated but only show a .2 correlation coefficient. The highest correlations occur between I1 and Distrust, and In-Group Bias and Need for Power, but neither reaches any higher than a .48 correlation coefficient. Collinearity between the independent variables should not be an issue when estimating the regression models.

RESULTS

The models were fitted with the above parameters and were estimated with two different estimation procedures for cross-sectional time-series data. Firstly, fixed effects models were estimated with only the independent variables of interest. Fixed effects estimation improves upon standard OLS estimation for pooled cross-sectional time-series data by taking into account differences across the observations that may not meet OLS assumptions due to the nature of CSTS data (Beck, 2008; Dielman, 1983; Podestà, 2002; Torres-Reyna, 2009). Fixed Effects estimation controls for all "time-invariant" predictors that may have an influence on the outcome variable (culture, religion, government type, etc.).This means that the group level control variables are not able to be estimated on their own within the fixed effects framework. The reason that fixed effects are reported here is twofold: (1) The fixed effects results are the easiest way to examine the direct effect of the independent variable (psychology) on the dependent (group lethality) by reporting coefficients that are analogous to standard OLS results. (2) Including fixed effects helps to give this study methodological pluralism by reporting the results of a commonly used estimation technique in the discipline.

The second estimation procedure performed in this study is hierarchical linear regression, which is also known as a random effects or multilevel model[15]. This estimation procedure, like fixed effects, helps to correct for potential assumption violations that would occur under normal OLS estimation. The difference between the two is that the random model allows for the

[15] Because this estimation procedure has a variety of correct names, the term Multilevel Model will be used to indicate this estimation procedure.

inclusion of time-invariant variables (Podestà, 2002; Shor et al., 2007; Steenbergen & Jones, 2002). This is because the random model allows for the non-independence of observations over time, but still assumes independence between groups (Beck, 2008; Dielman, 1983; Podestà, 2002). A second advantage of the random model is that it can help account for multiple levels of effects. It estimates level-1 variables that account for individual-level effects, and level-2 variables that account for group level effects. This is indeed where the "multilevel" portion of the random model comes from. For this study, level-1 variables are assumed to be the psychological traits of the terrorist-leader and the level-2 variables are assumed to be the group-level controls. Another advantage of the random model is that it allows the researcher to examine variance differences between different groups. Interpretation of the random model estimates is different from that of fixed effects. Random models take into account both the fixed and between effects and the independent variable coefficient should be interpreted as the average effect of X over Y when X changes across time and between observations (Torres-Reyna, 2009).

Before reporting the results of the models, two tests were conducted to examine potential mathematical problems that are common in CSTS data. These three problems are heteroskedasticy, andautocorrelation of the error terms[16], and contemporaneous correlation. These issues often bias the standard errors, which results in incorrect hypothesis testing outcomes (Beck, 2008; Podestà, 2002; Torres-Reyna, 2009). The model was tested for heteroskedasticity by using a modified wald test for group-wise heteroskedasticity[17]. The wald test indicated hetereoskedasticity in the data by rejecting the null hypothesis of

[16] Autocorrelation is also known as Serial Correlation.
[17] The test was carried out in Stata using the xttest3 command.

homosekedasticity (p = 0.00). The second test was for autocorrelation, which uses the Wooldridge test for autocorrelation in panel data.[18] The results of the Wooldridge test indicated that there is first-order autocorrelation (p = 0.00) within the data. To correct for heteroskedasticity and autocorrelation, group clustered standard errors were used for hypothesis testing. Group clustered standard errors produce a standard error estimate that is robust to both heteroskedasticity and autocorrelation and are often used in economics and finance panel data sets (Petersen, 2009; Torres-Reyna, 2009; Wooldridge, 2003). The final problem, contemporaneous correlation, is problematic for models with large time components (T > 30), and should not pose a problem for this study.

The results portion of this study contains five sections. The first section displays summary statistics and bivariate fixed effects regressions. The second section reports the results of the regression analyses for the entire dataset. The third section reports the results of the different leader groupings (single leader *vis a vis* leadership council). The fourth section reports the results of a variety of robustness checks by re-estimating the models without Al-Qaeda's September 11th data. The fifth and final section then examines substantive group level differences for I1 and Distrust by examining random slope parameters and reporting the Empirical Bayes Estimate for the group level variance of I1/Distrust for individual terrorist-organizations.

[18] The test was carried out in Stata using the xtserial command.

Summary Statistics and Bivariate Models

Table 3 Summary Statistics | N = 104

Variable	Mean	Standard Deviation	Min	Max
Lethality	140.71	364.83	0	2996
Philosophical Belief (P1)	0.04	0.23	-1	1
Instrumental Belief (I1)	0.23	0.41	-1	1
Need for Power and Influence	0.31	0.11	0.09	0.57
Distrust of Others	0.28	0.15	0	0.74
In-Group Bias	0.18	0.09	0	0.46
Self-Confidence	0.18	0.19	0	1
Territory	0.78	0.41	0	1
Alliances	6.4	10.4	0	33
Organization Size	2.03	0.81	1	3
Religious	0.28	0.45	0	1
Ethnic/Separatist	0.42	0.49	0	1
Leftist	0.33	0.47	0	1

Table 3 above shows the summary statistics for the variables used in this study. This includes mean, standard deviation, and the range of each variable. Table 4 below shows simple bivariate correlations using fixed effects and cluster robust standard errors to correct for heteroskedasticity and serial correlations.

Table 4 Bivariate Fixed Effects Models for Main Independent Variables | N = 104

Variable	Coefficient	T-Statistic	P Value	R^2
Philosophical Beliefs (P1)	-146.06	-0.77	0.461	0.03
Instrumental Beliefs (I1)	-82.78	-2.8	0.01	0.04
Need for Power and Influence	-386.4	-1.84	0.09	0.01
Distrust of Others	205.21	0.92	0.38	0.07
In-Group Bias	-437.15	-1.25	0.23	0.01
Self-Confidence	258.11	1.72	0.11	0.01

The simple bivariate models show support for only the instrumental beliefs (strategic) hypothesis. The only other variable that approaches statistical significance is Need for Power, although, not with the hypothesized coefficient direction. The rest of the main independent variables show no significance in a bivariate fixed effects model.

Overall Results[19]

Table 5 Fixed Effects Models (Fatality Dependent Variable) | N=104

Variable	Model(1)	Model(2)
Philosophical	-153.26 (204.9)	
Instrumental		-97.09 (45.2)*
Need for Power	-303.31 (181.4)	-197.87 (151.5)
Distrust	270.9 (270.9)	207.58 (257.6)
In-Group Bias	-329.14 (345.3)	-393.4 (410.1)
Self-Confidence	219.17 (168.8)	217.09 (159.03)
Constant	186.58 (110.4)	202.85 (154.3)
F Stat	1.87	4.19 **
Overall R^2	0.05	0.04

Robust Standard Errors in Parentheses | *** p <0 .01, **p < 0.05, *p < 0.1

The fixed effect models in Table 5 only show one significant predictor, which was Instrumental Belief. The coefficient shows the correct direction and was significant at the ten percent level. None of the other main independent variables show significance, which could be an indicator that the assumptions of fixed effects do not adequately capture the influence of the group in estimating the effect of psychology on terrorist lethality.

[19] All models were estimated in Stata using the xtreg command for fixed effects models and the xtmixed command for random models.

Table 6 Multilevel Models (Fatality Dependent Variable) | N=104

Variable	Model(3)	Model(4)	Model(5)	Model(6)
Philosophical	-178.24 (157.31)		-175.42 (203.7)	
Instrumental		-122.38 (45.17)**		-115.47 (43.67)***
Need for Power	-92.85 (396.35)	51.82 (161.13)	-127.35 (174.17)	-11.51 (116.55)
Distrust	663.97 (260.55)**	590.99 (206.77)***	337.03 (169.05)**	241.12 (245.22)
In-Group Bias	101.61 (427.134)	75.61 (133.91)	-95.44 (362.25)	-173.57 (417.65)
Self-Confidence	224.82 (188.48)	221.3 (152.17)	213.18 (144.30)	213.85 (133.53)
Territory			318.24 (134.64)**	329.12 (143.76)**
Organization Size			-65.06 (27.47)**	-76.5 (31.52)**
Alliances			9.91 (1.61)***	5.79 (1.85)***
Religious Dummy			-20.05 (56.08)	-2.63 (64.04)
Ethnic/Separatist Dummy			237.28 (132.62)*	251.97 (141.7)*
Constant	-70.59	-67.14	-184.27 (61.55)***	-145.04 (65.82)**
Log pseudolikelihood	-755.88	-755.85	-751.86	-751.82
Wald Chi^2	11.46**	82.47***	1214.29***	1639.11***
Var(Con)	995.06	530.41	5.70e-14	4.34e-14
Var(Residual)	119427.2	119792.3	111410.9	111333.6

Robust Standard Errors in Parentheses | *** p <0 .01, **p < 0.05, *p < 0.1

Table 6 shows the results of the random models. The first two models only contained the main psychology variables. I1 was once again an important predictor by displaying the correct

direction in the coefficient alongside statistical significance. I1 met the mainstream conservative significance level of five percent. A second predictor of note was that of Distrust, showing significance in both models 3 and 4. Distrust showed the hypothesized direction and significance in every model except for the fully specified Instrumental model. Another result of these two models is that of the role of Philosophical Belief and Instrumental Belief. It seems that Instrumental Belief is a much better indicator of terrorist-group lethality. Measurements of model fit (Log psuedolikelihood and Wald Chi2) both show better model fit than Philosophical Belief. The random intercept (Var(con)), which indicates the amount of group specific explained variance in the dependent variable, also considerably decreased from the Philosophical model to the Instrumental model. This indicates that Instrumental Belief contributes much more to explaining the variance of terrorist-group lethality.

Models 5 and 6 in Table 6 estimate the fully specified models that contain important control variables. As expected, the group level controls showed significant influence on group-lethality. More importantly, Instrumental Belief was once again significant when controlling for group level variables. It again showed the hypothesized direction with a substantively large effect on group-lethality (-115.47). Distrust retained significance in the Philosophical Belief model, but lost significance in the Instrumental Belief model. Distrust, when significant, also retained the hypothesized direction and a substantively large effect (337.03) on group lethality. The effect of Distrust, while still large, did show a sharp drop in the coefficient when controlling for group level predictors. Model fit measurements (pseudologlikliehood and Wald Chi2) also indicated that the inclusion of group level controls greatly improved model fit. The random intercept component (Var(con)) for the model also indicated that the inclusion of group level

(level-2) variables greatly increased the amount of explained variance within the dependent variable. In terms of the independent variables of interest, both fixed effects and multilevel models suggest that as a leader's instrumental (strategic) beliefs become more competitive, the lethality of group violence also increases. The multilevel models also somewhat suggest that as a leader become more distrustful, the violence of group violence will increase as well.

Leader Type Grouping Results

Table 7 Fixed Effects Models (Fatality Dependent Variable) | Leader (N=61), Leadership Council (N=43)

Variable	Philosophical Leader Model	Philosophical Leadership Council Model	Instrumental Leader Model	Instrumental Leadership Council Model
Philosophical Belief	-590.87 (150.41)***	14.02 (19.28)		
Instrumental Belief			-97.34 (73.83)	3.97 (7.61)
Need for Power	-602.33 (278.47)*	110.2 (62.10)	-397.85 (358.59)	105.47 (52.9)*
Distrust	637.8 (390.25)	37.08 (77.29)	499.62 (399.23)	25.6 (87.58)
In-Group Bias	-605.1154 (560.05)	19.33 (67.08)	-634.17 (618.27)	18.36 (62.13)
Self-Confidence	631.2 (335.19)*	19.53 (11.83)	543.34 (240.96)*	18.59 (13.97)
Constant	193.93 (267.05)	-25.44 (38.00)	198.01 (311.92)	-21.77 (35.34
F Stat	10.89***	88.94***	8.05***	8.31***
R^2	0.13	0.12	0.07	0.12

Robust Standard Errors in Parentheses | *** p <0 .01, **p < 0.05, *p < 0.1

Table 7 reports the results of the fixed effects models for groups with both singular leadership and leadership councils. Only the Philosophical singular leadership model shows a

high degree of significant predictors. Philosophical Belief, Need for Power, and Self-Confidence all show some level statistical significance in the Philosophical leader model. Philosophical Belief shows the hypothesized direction, while Self-Confidence does not. Need for Power shows the opposite direction, but only displays weak significance. This change in direction could be due to the fact that leaders who hold singular leadership and have a high need for power and influence are more interested in internal affairs such as their leadership status and group structure than increasing the lethality of terrorist violence.

For the Instrumental models, Instrumental Belief show no statistical significance, but Self-Confidence (Singular Leadership) and Need for Power (Leadership Council) do show weak significance with the hypothesized directions. Self-Confidence is weakly significant in both of the singular leader models, albeit in the opposite of the hypothesized direction. This might indicate that the initial intuitions about the role of terrorist-leader self-confidence on the lethality of group violence may be more indicative of the general role of self-confidence on radicalization and violence (Bar-Tal, 2001; Pyszczynski et al., 2008), and not necessarily the role of leader self-confidence in determining group lethality. In fact, the result in Table 7 may actually be more intuitive than the hypothesized effect. The increase in group lethality with higher singular leader self-confidence may actually be evidence of observed terrorist behavior from other studies. Leaders with high self-confidence may increase the lethality of violence because they have more confidence in the efficacy of their group's violent behavior on extracting concessions from a target government or group (Crenshaw, 1986, 2007).

Table 8 shows the results of the random models amongst singular leadership and leadership councils. Philosophical Belief is statistically significant in the singular leadership model, but not the leadership council model. The coefficient for Philosophical Belief also displays the hypothesized coefficient direction. Instrumental Belief also shows significance only in the singular leadership model and not the leadership council model. Instrumental Belief has the hypothesized coefficient direction with a large substantive effect. Distrust again shows statistical significance, but only in the singular leader models. Distrust continues to have the hypothesized coefficient direction alongside having statistical significance. Lastly, Self-Confidence does show weak significance in the Philosophical leadership council model and Instrumental singular leadership model. The direction is again the opposite of the hypothesized effect of self-confidence on group lethality.

Table 8 Multilevel Models (Fatality Dependent Variable) | Leader (N=61), Leadership Council (N=43)

Variable	Philosophical Leader Model	Philosophical Leadership Council Model	Instrumental Leader Model	Instrumental Leadership Council Model
Philosophical Belief	-555.01 (177.27)***	16.64 (19.37)		
Instrumental Belief			-110.49 (44.68)**	-5.16 (12.96)
Need for Power	-67.34 (273.27)	112.14 (61.1)*	227.01 (301.23)	107.37 (49.16)**
Distrust	1293.91 (330.91)***	46.88 (83.49)	1152.7 (283.04)***	29.5 (89.82)
In-Group Bias	-514.95 (428.03)	12.41 (12.41)	-475.37 (362.03)	2.38 (57.15)
Self-Confidence	539.96 (346.96)	20.5 (11.02)*	447.67 (269.71)*	16.88 (12.44)
Constant	-169.68 (168.38)	-17.72 (32.14)	-199.44 (126.97)	-6.43 (29.82)
Log Psuedolikelihood	-454.87	-215.14	-456.59	-215.39
Wald Chi^2	78.66	36.77	112.39	51.4
Var(Con)	4.06e-14	845.54	9.21e-22	843.3
Var(Residual)	175637.6	987.93	185824.5	1001.61

Robust Standard Errors in Parentheses | *** p <0 .01, **p < 0.05, *p < 0.1

In terms of the overall influence of the psychological dispositions of leaders on terrorist-group lethality, the random model shows interesting differences between singular leaders and leadership councils. The models that examine statements made by singular leaders show better model fit results when examining log psuedolikelihood and Wald Chi Squared. The variance component of the random intercept (Var(Con)) shows that the psychology variables better explain the variance in group lethality when the statements are taken from a singular leader than from a leadership council. This seems intuitive because singular leaders should have more power over their organization and thus their psychological dispositions should have more influence over

the group behavior that they sanction. For groups with single leaders, as both Philosophical Belief and Instrumental Belief become less competitive in nature, the group's violence become less lethal. In terms of personality traits, when singular leaders become more distrustful, the group's lethality increases. For the models that examined groups with leadership councils, only need for power showed consistent significance. As a leadership council's need for power and influence increased, so did the group's violence.

Unfortunately, due to the smaller population sizes due to splitting the data between singular leadership and leadership councils, it is impossible to fit models with the group level control variables without over-fitting the equation[20]. An interesting difference between leadership types may also be present when examining group level capabilities and ideology. A series of random models were estimated using only the group level controls for each of the leadership types. The random intercepts showed that group level controls (capabilities and ideology) explained more of the variance in terrorist-group lethality when the groups had a leadership council as opposed to a singular leader[21]. This finding is consistent with the results of the models that examined the psychological dispositions above. It would seem that groups with leadership councils are better characterized by group level variables such as ideology and group capabilities, and groups with a singular leadership show more influence by that individual leader and their subsequent psychological disposition on group lethality.

[20] Stata reports a non-existent Wald Chi Squared for model fit, which is an indicator of over-fitting in the estimated model.

[21] The results for the pure group level models are not shown in this paper for two reasons. Firstly, until more observations can be collected, it will be difficult to fit a fully specified model without over-fitting. The conclusion about the substantive differences between leadership types should be considered preliminary. Second, the objective of this paper is to test hypotheses concerning psychological beliefs and traits, and a more nuanced look into the complex relationship between leadership type, group level variables, and individual variables is better examined on its own or in a broader paper.

Robustness Test

If you surveyed a random sample of Americans on what they believe to be the most defining moment in the history of terrorism, it probably would not be a surprise to get a large portion of responses that indicated the September 11th attacks by Al-Qae'da. There have been nearly two hundred thousand documented terrorist attacks since 1970 (LaFree & Dugan, 2004), yet the 9-11 attacks remain salient in the collective memory of the planet. In terms of econometric modeling, it may be possible that the September 11th attacks could be influencing the results of the models presented in this study. In a study by James Piazza, he found that Al-Qae'da and Al-Qae'da affiliates may be unique groups that represent outlying cases when studying terrorist-organization lethality (Piazza, 2009). Piazza discovered that previous empirical studies, which found that religious groups were more lethal than groups of other ideologies, were probably influenced by Al-Qae'da and that after controlling for Al-Qae'da; religious organizations were no more violent than other types of groups (Piazza, 2009).

This section shows the results of multilevel models that are analogous to the models presented in Table 4, except for the removal of the 2001 Al-Qae'da observation. The total fatality count in the data is a total of 15,057, with the 2001 Al-Qae'da observation counting for nearly twenty percent (2,992) of the total. This observation is also nearly three times as much as the next highest observation (LTTE 1991, 1041 fatalities). Table 7 reports the results of the multilevel models estimated without the 2001 Al-Qae'da observation.

The results of the models in Table 9 are similar to the original fully specified multilevel models. Distrust is no longer significant in the fully specified Instrumental model, but retains

significance in the fully specified Philosophical model. Distrust also has the hypothesized coefficient direction with a large substantive effect. Instrumental Belief again shows significance in both the pure psychology and fully specified models. The coefficient also shows the hypothesized direction. The group level control variables retain some expected levels of significance, but they show overall less statistical significance[22] when removing the 2001 Al-Qae'da observation. As with the overall models, the results shows that as instrumental (strategic beliefs) becomes more competitive the group's violence increases. Distrust again shows limited support, meaning that as a leader becomes more distrustful, the group's lethality increases.

[22] Degree of Alliance Connections loses all significance when dropping the 2001 Al-Qae'da observation. This could be because Al-Qae'da often represents the archetypical networked/connected terrorist organization.

Table 9 Multilevel Models (Fatality Dependent Variable) | Al-Qae'da 2001 removed. | N=103

Variable	Model(1)	Model(2)	Model(3)	Model(4)
Philosophical Belief	13.88 (110.48)		-4.98 (119.85)	
Instrumental Belief		-73.51* (39.97)		-101.29** (46.60)
Need for Power	-119.85 (147.47)	-87.52 (161.13)	-10.94 (165.69)	61.03 (120.89)
Distrust	342.07** (159.16)	239.63 (183.77)	252.98** (101.29)	128.81 (156.57)
In-Group Bias	-269.49 (200.52)	-320.12 (230.39)	-260.33 (310.06)	-316.64 (356.12)
Self-Confidence	122.86 (106.46)	120.97 (106.72)	119.92 (98.43)	120.72 (98.80)
Territory			294.18** (126.11)	310.92** (128.72)
Organization Size			-49.43 (34.22)	-57.35* (34.33)
Alliances			.53 (2.56)	-.88 (2.41)
Religious Dummy			-40.54 (62.91)	-9.12 (68.13)
Ethnic/Separatist Dummy			204.90 (136.61)	242.53* (139.28)
Constant	68.67 (78.21)	114 (81.65)	-132.86 (81.55)	-97.69* (58.51)
Log pseudolikelihood	-694.1	-693.25	-690.86	-689.35
Wald Chi^2	31.14***	59.52***	1232.94***	1208.11***
Var(Con)	12773.59	13334.97	1801.81	747.00
Var(Residual)	36206.53	35436.37	37769.33	37410.24

Robust Standard Errors in Parentheses | *** p <0 .01, **p < 0.05, *p < 0.1

The model fit statistics show similar results by indicating that the model fit (Pseudologliklihood and Wald Chi Squared) improves with the control variables, and more specifically the inclusion of the Instrumental Belief variable in the fully specified model. The

variance component of the group level random intercepts (Var(Con)) again indicate that group level variables helps to explain a larger portion of the variance in group lethality. Again, the fully specified model with the inclusion of instrumental belief explains most of the variance in terrorist-group lethality.

Group Level Differences

The models reported above have so far reported the results for hypothesis testing purposes. It is clear that the instrumental beliefs and the level of distrust displayed by terrorist-leaders play a role in how violent their organizations will be. This section seeks to complement the hypothesis testing by examining group level differences for both instrumental beliefs and leader distrust. This is done by utilizing Empirical Bayes Estimates for the random slope estimation for both I1 and Distrust of Others. Empirical Bayes Estimates calculate random intercepts and slopes and can be used to display how they vary across units of analysis (Steenbergen & Jones, 2002). They are often used to create priors for the Empirical Bayes (EB) method of data analysis, which is a variant of traditional Bayesian data analysis. The results of the Empirical Bayes Estimates for the random slopes for Instrumental Belief and Distrust are displayed in Figures 2 and 3[23]. The graphs of the Empirical Bayes Estimates are interpreted by reading left to right. Slopes graphed on the left hand side of the graph show the least influence of the psychology variable on a group's lethality, and slopes graphed on the right hand side of the graph show the most influence of a psychology variable on a group's lethality.

[23] The Empirical Bayes Estimates were calculated and graphed in Stata.

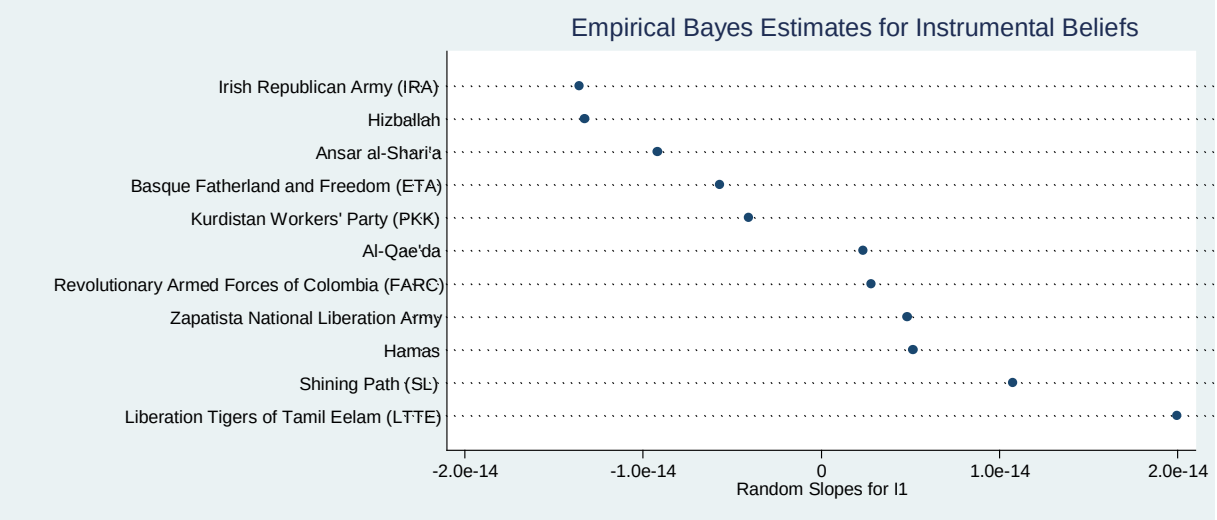

Figure 2 Group Specific Empirical Bayes Estimates for Instrumental Belief

The estimates for instrumental beliefs show considerable variance in the random slopes across groups. The leader for the LTTE (Velupillai Prabhakaran) shows the highest influence of I1 on his group's lethality. In fact, Prabhakaran's instrumental beliefs are by far the most salient case of instrumental beliefs in the population of organizations examined in this study. Qualitatively this should not be surprising as the conflict in Sri Lanka between the LTTE and the Sinhalese-dominated government was observed as being particularly brutal (Becker, 2004; de Jong et al., 2002). Prabhakaran expressed the view that militant actions would be the only way to gain self-governance for the Tamil people in Sri Lanka, and personally oversaw highly lethal programs such as the Tiger suicide bomb units. The Irish Republican Army (IRA Army Council) shows the lowest influence of a leader's strategic beliefs on their group's lethality. This too may not be surprising when looking at the temporal range of the data examined. By 1991 and onward, the IRA had ended large scale campaigns for terrorist violence. Suspected current and

former leaders of the IRA such as Gerry Adams were beginning to involve themselves more in the political process as opposed to continuing systematic political violence.

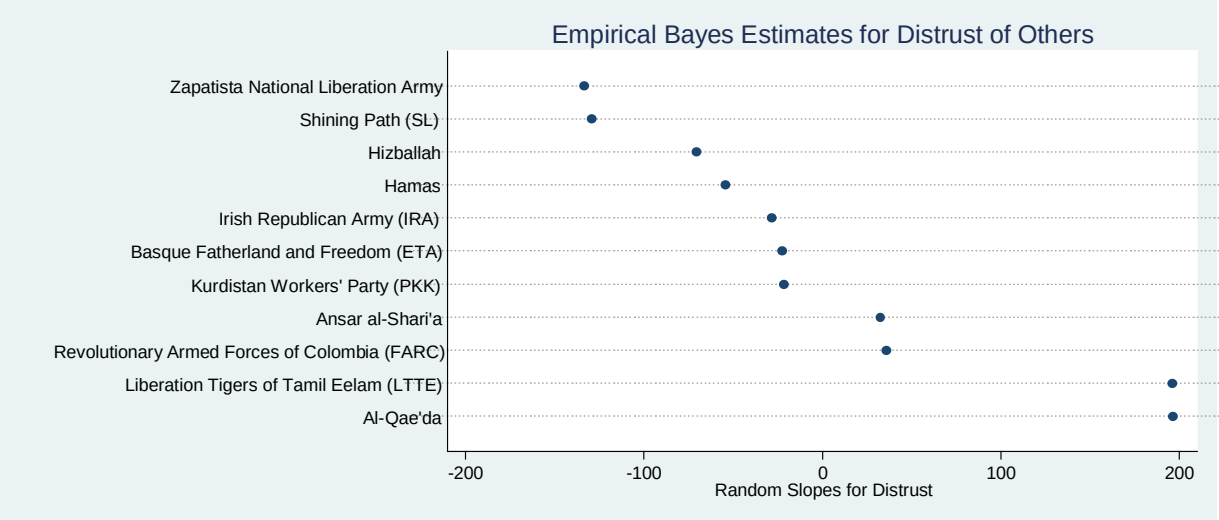

Figure 3 Group Specific Empirical Bayes Estimates for Distrust

The Empirical Bayes Estimates for leader distrust shows less variance between certain terrorist-organizations. There appears to be some groupings in leadership distrust. The LTTE (Prabhakaran) and Al-Qae'da (Osama bin Laden) show the highest levels of distrust being an influence on group lethality. These results are not surprising as both leaders were often characterized as having displayed elements of paranoia and deep distrust of enemies from within and outside their organizations. The EZLN (sub-commandante Marcos) and the Shining Path (Guzman, and later a leadership council) show the lowest influence of leadership distrust on group lethality. The results for Marcos and Guzman are also not surprising as both leaders were commonly associated with civilians and non-members of their respective organizations, and did not exhibit extreme outward paranoia nor did they take great steps to hide their whereabouts from the average person like Bin Laden and Prabahakran did. Al-Qae'da in the Arabian

Peninsula and the FARC create another similar grouping that forms the second highest influence of leader distrust on group lethality, and the PKK, ETA, IRA, Hamas, and Hezbollah form another similar grouping that represents the middle to lower end of influence of distrust on group lethality.

CONCLUSION

The results of the empirical analysis performed for this study show that elements of terrorist-leader psychology do matter. Specifically, a leader's instrumental (strategic) beliefs and their personal distrust of others are significant predictors of increased group lethality during the next year. Statistically, the models that had both I1 and Distrust of Others alongside a series of group-level control variables, performed the best in both model fit, and explained the most variance in group lethality per year. These results held for the overall analysis, as well as the check for robustness, which removed the September 11 attacks from the dataset. Slightly different results were found when examining the differences between groups with singular leaders and groups with leadership councils. Instrumental Beliefs, Philosophical Beliefs, and Distrust of Others remained statistically significant in the multi-level models that used only groups with singular leaders, but were not significant in the models that used groups with leadership councils. This means that groups with singular leadership may be more susceptible to the whims of their leader's psychological dispositions than to the whims of a collective psychological disposition of a leadership council.

When examining the individual groups that were included in this study, there is also considerable heterogeneity in the influence of the significant psychological variables on terrorist-

group lethality. Some groups are more influenced by a leader's strategic orientation or a leader's distrust than others when it comes to group violence. This fact, while unsurprising, raises interesting questions for future empirical study of terrorist-leader psychology, and with other dependent variables, it may be that other psychological dispositions are important for groups that engage in other forms of activity such as kidnapping, smuggling, joining the political process, etc.

This thesis has been an exercise in both intellectual and substantive growth for the author. The total N for this study comes to a humble one hundred and four observations of terrorist-leader statements. The collection of terrorist-leader statements will not end with this study, but will continue to grow into a larger database. Hopefully this exercise will result in a dataset that will not only be used to answer my own questions, but can be used to promote theoretical and methodological growth by helping other scholars within terrorism studies answer questions concerning terrorist psychology. With a larger dataset, this project will be improved as well. In the future a Bayesian hierarchical framework will be applied to the questions asked here. Empirical terrorism studies fit well in to the Bayesian framework, by allowing researchers to incorporate previous substantive knowledge about group behavior into hypothesis testing[24]. Alongside this approach, there are still more questions to be asked about the role of terrorist-leaders in predicting group behavior. Future questions include issues of bargaining and concessions between states and terrorist-organizations, the interaction of ideology and the

[24] This includes previous attacks, fatalities, characteristics of groups, possible changes in the psychological dispositions of terrorist-leaders.

psychological characteristics of leaders, the heterogeneity of psychology amongst terrorist-leaders, and even case studies about the decisions of leaders over time.

The main objective of this study was to investigate the role in which terrorist-leader psychology influences the violent behavior of terrorist-organizations, but it was also an attempt to compliment and progress current empirical research on terrorist-group violence. The results shown here contain two main points about terrorist-group lethality. The first is that leader psychology, and more specifically instrumental beliefs and level of distrust, is a salient factor when examining terrorist-group lethality as a dependent variable. The second point is that the predictors of terrorist-group lethality are more complex than a standard assessment of terrorist-organization material capabilities or even the utilization of simplistic assumptions about the nature of extremist ideologies. This is not to say that group level variables do not matter or are not important predictors of group violence. In-fact, group level predictors were consistently significant and helped to explain a large portion of the variance in terrorist-group lethality. The results only clarify that extremist behavior is more complex than pure group-level characteristics, as many terrorism-studies scholars probably know already.

What terrorist-leaders say to the outside world matters a great deal. When leaders say they view competitive (violent) strategies as the way towards gaining objectives, their group's violent behavior reflects that belief. Leaders who exhibit distrust in their statements will also promote increased lethality in their group's violence. These results would probably seem rather intuitive to scholars of psychology within terrorism-studies, but the method used here allows for an objective way to examine those beliefs. This means that examination of patterns in terrorist-

group behavior as predicted by leader statements could be a fruitful program for those interested in a variety of issues within counter-terrorism and mainstream terrorism-studies. What may be more important though, is that those in positions of power should listen to the leaders of these groups. Unfortunately, by the nature of conflicts that involve extremist violence, much of what these groups say is suppressed or destroyed. This study does not make normative statements about possible solutions to political violence, but it is clear that governments may benefit from listening to what these groups have to say. Stopping terrorist campaigns and ending terrorist-organizations is a complex issue that may have multiple solutions dependent on a variety of factors, and learning about the individuals who make organizational decisions should be a salient part of finding that solution.

BIBLIOGRAPHY

Acharya, A., & Marwah, S. (2011). Nizam, la Tanzim (System, not Organization): Do Organizations Matter in Terrorism Today? A Study of the November 2008 Mumbai Attacks. *Studies in Conflict & Terrorism, 34*(1), 1-16.

Akhtar, S. (1999). The psychodynamic dimension of terrorism. *Psychiatric Annals*.

Asal, & Rethemeyer. (2008). The nature of the beast: Organizational structures and the lethality of terrorist attacks. *Journal of Politics, 70*(2), 437-449.

Asal, Rethemeyer, R. K., Anderson, I., Stein, A., Rizzo, J., & Rozea, M. (2009). The softest of targets: a study on terrorist target selection. *Journal of Applied Security Research, 4*(3), 258-278.

Bar-Tal, D. (2001). Why does fear override hope in societies engulfed by intractable conflict, as it does in the Israeli society? *Political Psychology, 22*(3), 601-627.

Beck, N. (2008). Time-series-cross-section methods. *Oxford Handbook of Political Methodology*, 475-493.

Becker, J. (2004). *Sri Lanka, Living in Fear: Child Soldiers and the Tamil Tigers in Sri Lanka* (Vol. 16): Human Rights Watch.

Behlendorf, B., Lafree, G., & Legault, R. (2012). Microcycles of Violence: Evidence from Terrorist Attacks by ETA and the FMLN. *Journal of Quantitative Criminology, 28*(1), 29.

Borowitz, A. (2005). *Terrorism for self-glorification: The Herostratos syndrome*: Kent State University Press.

Brands, H. (2011). Crime, Irregular Warfare, and Institutional Failure in Latin America: Guatemala as a Case Study. *Studies in Conflict & Terrorism, 34*(3), 228-247.

Bryant, E. T. (1984). Neuropsychological deficits, learning disability, and violent behavior. *Journal of consulting and clinical psychology, 52*(2), 323-324.

Bueno de Mesquita, E. (2005). Conciliation, Counterterrorism, and Patterns of Terrorist Violence. *International Organization, 59*(10), 31.

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of personality and social psychology, 75*(1), 219.

Castano, E., Yzerbyt, V., Paladino, M.-P., & Sacchi, S. (2002). I belong, therefore, I exist: Ingroup identification, ingroup entitativity, and ingroup bias. *Personality and Social Psychology Bulletin, 28*(2), 135-143.

Clauset, A., & Gleditsch, K. S. (2012). The developmental dynamics of terrorist organizations. *PloS one, 7*(11), e48633.

Clauset, A., & Wiegel, F. W. (2010). A generalized aggregation-disintegration model for the frequency of severe terrorist attacks. *Journal of Conflict Resolution, 54*(1), 179-197.

Cornell, S. (2008). The Interaction of Narcotics and Conflict. In G. Chalew & S. Quesenberry (Eds.), *Terrorism in Perspective* (pp. 101-109). Thousand Oaks, California: Sage Publications.

Corsi, J. R. (1981). Terrorism as a Desperate Game Fear, Bargaining, and Communication in the Terrorist Event. *Journal of Conflict Resolution, 25*(1), 47-85.

Cottee, S., & Hayward, K. (2011). Terrorist (e) motives: The existential attractions of terrorism. *Studies in Conflict & Terrorism, 34*(12), 963-986.

Crayton, J. W. (1983). Terrorism and the Psychology of the Self. *Perspectives on Terrorism. Wilmington, Delaware: Scholarly Resources*, 33-41.

Crenshaw, M. (1981). The causes of terrorism. *Comparative politics, 13*(4), 379-399.

Crenshaw, M. (1986). The psychology of political terrorism. *Political psychology*, 379-413.

Crenshaw, M. (1987). Theories of terrorism: Instrumental and organizational approaches. *The Journal of strategic studies, 10*(4), 13-31.

Crenshaw, M. (1991). How terrorism declines. *Terrorism and Political Violence, 3*(1), 69-87.

Crenshaw, M. (1992). Current research on terrorism: The academic perspective. *Studies in Conflict & Terrorism, 15*(1), 1-11.

Crenshaw, M. (2002). The utility of political psychology. *Political psychology*, 141-150.

Crenshaw, M. (2007). The logic of terrorism. *Terrorism in Perspective, 24*.

Crenshaw, M. (2013). instrumental reasoning. *Terrorism Studies: A Reader*, 250.

De Dreu, C. K., Greer, L. L., Handgraaf, M. J., Shalvi, S., Van Kleef, G. A., Baas, M., . . . Feith, S. W. (2010). The neuropeptide oxytocin regulates parochial altruism in intergroup conflict among humans. *Science, 328*(5984), 1408-1411.

de Jong, K., Mulhern, M., Ford, N., Simpson, I., Swan, A., & van der Kam, S. (2002). Psychological trauma of the civil war in Sri Lanka. *The Lancet, 359*(9316), 1517-1518.

De Quervain, D. J.-F., Fischbacher, U., Treyer, V., Schellhammer, M., Schnyder, U., Buck, A., & Fehr, E. (2004). The neural basis of altruistic punishment. *Science*.

Dielman, T. E. (1983). Pooled cross-sectional and time series data: A survey of current statistical methodology. *The American Statistician, 37*(2), 111-122.

Enders, W., & Sandler, T. (2000). Is transnational terrorism becoming more threatening? A time-series investigation. *Journal of Conflict Resolution, 44*(3), 307-332.

Enders, W., & Sandler, T. (2002). Patterns of transnational terrorism, 1970–1999: alternative time-series estimates. *International Studies Quarterly, 46*(2), 145-165.

Eubank, W. L., & Weinberg, L. (1994). Does democracy encourage terrorism? *Terrorism and Political Violence, 6*(4), 417-435.

Frey, B. S., Luechinger, S., & Stutzer, A. (2007). Calculating tragedy: Assessing the costs of terrorism. *Journal of Economic Surveys, 21*(1), 1-24.

Friedland, N. (1992). *Becoming a terrorist: Social and individual antecedents*.

Frisch, E. (2012). Insurgencies are Organizations Too: Organizational Structure and the Effectiveness of Insurgent Strategy. *Peace and Conflict Review, 6*(1), 1-23.

Geltzer, J.-A. (2011). Taking Hand-Outs or Going It Alone: Nationalization versus Privatization in the Funding of Islamist Terrorist Groups. *Studies in Conflict & Terrorism, 34*(2), 144-170.

Gould, E. D., & Klor, E. F. (2010). Does Terrorism Work? *The Quarterly Journal of Economics, 125*(4), 1459-1510.

Greenberg, J., Arndt, J., Kruglanski, A., Higgins, E., & van Lange, P. (2011). Terror management theory. *Handbook of theories of social psychology*, 398-415.

Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., & Lyon, D. (1990). Evidence for terror management theory II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology, 58*(2), 308.

Gunaratna, R. (2013). Terrorism: a Unique Form of Political Violence. *Why We Kill: Understanding Violence Across Cultures and Disciplines*, 139.

Hacker, F. J. (1983). Dialectical Interrelationships of Personal and Political Factors in Terrorism. *Perspectives on Terrorism. Wilmington, Delaware: Scholarly Resources*, 19-32.

Hermann, M. G. (2005). Assessing leadership style: A trait analysis. *The psychological assessment of political leaders*, 178-212.

Hermann, M. G., & Sakiev, A. (2011). Leadership, terrorism, and the use of violence. *Dynamics of Asymmetric Conflict, 4*(2), 126-134.

Hoffman, B. (1995). "Holy terror": the implications of terrorism motivated by a religious imperative. *Studies in Conflict & Terrorism, 18*(4), 271-284.

Hoffman, B. (2006). *Inside Terrorism*. New York: Columbia University Press.

Hosking, G. (2009). Terrorism and trust. *Critical Studies on Terrorism, 2*(3), 482-496.

Jones, J. W. (2013). The psychology of contemporary religious violence: A multidimensional approach.

Jongman, A. J. (2005). *Political terrorism: A new guide to actors, authors, concepts, data bases, theories, and literature*: Transaction Publishers.

Jordan, J. (2009). When heads roll: Assessing the effectiveness of leadership decapitation. *Security Studies, 18*(4), 719-755.

Kalyvas, S. N. (2004). The paradox of terrorism in civil war. *The Journal of Ethics, 8*(1), 97-138.

Kaplan, A. (1978). The psychodynamics of terrorism. *Studies in Conflict & Terrorism, 1*(3-4), 237-254.

Kernberg, O. F. (2003a). Sanctioned social violence: A psychoanalytic view-Part I. *The International Journal of Psychoanalysis, 84*(3), 683-698.

Kernberg, O. F. (2003b). Sanctioned social violence: A psychoanalytic view. Part II. *The International Journal of Psychoanalysis, 84*(4), 953-968.

Krueger, A. B. (2008). *What makes a terrorist: economics and the roots of terrorism (New Edition)*: Princeton University Press.

Kydd, & Walter, B. (2006). The strategies of terrorism. *International Security, 31*(1), 49-80.

Kydd, & Walter, B. (2009). Outbidding and the Overproduction of Terrorism.

LaFree, G. (2010). The Global Terrorism Database: Accomplishments and Challenges. *Perspectives on Terrorism, 4*(1).

LaFree, G. (2012). Countering Myths about Terrorism: Some Lessons Learned from the Global. *What Do We Expect from Our Government?*, 71.

LaFree, G., & Dugan, L. (2004). Global Terrorism Database. *University of Maryland*.

LaFree, G., & Dugan, L. (2007). Introducing the global terrorism database. *Terrorism and Political Violence, 19*(2), 181-204.

Lake, D. A. (2002). Rational extremism: Understanding terrorism in the twenty-first century. *Dialog-IO, 1*(1), 15.

Laqueur, W., & Alexander, Y. (1978). *The terrorism reader: A historical anthology*: Temple University Press Philadelphia.

Lawrence, A. (2010). Triggering nationalist violence: competition and conflict in uprisings against colonial rule. *International Security, 35*(2), 88-122.

Lazarevska, E., Sholl, J. M., & Young, M. D. (2006). Links among beliefs and personality traits: The distinctive language of terrorists. *Beliefs and leadership in world politics*, 171-186.

Leites, N. (1951). The operational code of the Politburo: DTIC Document.

Locicero, A., & Sinclair, S. J. (2008). Terrorism and terrorist leaders: insights from developmental and ecological psychology. *Studies in Conflict & Terrorism, 31*(3), 227-250.

Mannes, A. (2008). Testing the Snake Head Strategy: Does Killing or Capturing its Leaders Reduce a Terrorist Group's Activity? *The Journal of International Policy Solutions, 9*, 40-49.

Mullins, S., & Dolnik, A. (2009). Terrorist Networks and Small Group Psychology. *The Faces of Terrorism: Multidisciplinary Perspectives*, 137-150.

Nagl, J. A., Amos, J. F., Sewall, S., & Petraeus, D. H. (2008). *The US Army/Marine Corps Counterinsurgency Field Manual*: University of Chicago Press.

Navarrete, C. D., Kurzban, R., Fessler, D. M., & Kirkpatrick, L. A. (2004). Anxiety and intergroup bias: Terror management or coalitional psychology? *Group Processes & Intergroup Relations, 7*(4), 370-397.

Nemeth, S. (2013). Effect of Competition on Terrorist Group Operations. *Journal of Conflict Resolution, 0022002712468717*. doi: 10.1177/0022002712468717

Newman, L. (2012). Do Terror Attacks Increase Closer to Elections? *Terrorism and Political Violence, 25*(1), 20.

Olsson, P. A. (1988). The terrorist and the terrorized: Some psychoanalytic consideration. *The Journal of Psychohistory*.

Pape. (2003a). The strategic logic of suicide terrorism. *American political science review, 97*(3), 343-361.

Pape. (2003b). The Strategic Logic of Suicide Terrorism. *American Political Science Review, 97*(3), 19.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of financial studies, 22*(1), 435-480.

Piazza, J. A. (2009). Is Islamist terrorism more dangerous?: An empirical study of group ideology, organization, and goal structure. *Terrorism and Political Violence, 21*(1), 62-88.

Picarelli, J. (2012). A Brief Discussion of the Nature and Convergence of Transnational Organized Crime and Terrorism (Vol. NCJ 238793). Washington D.C., United States: U.S. Department of Justice.

Picucci, P. M. (2008). *Terrorism's Operational Code: An Examination of the Belief Systems of al-Qaeda and Hamas*: ProQuest.

Podestà, F. (2002). Recent developments in quantitative comparative methodology: The case of pooled time series cross-section analysis. *DSS Papers Soc*, 3-02.

Post. (1990). Terrorist psycho-logic: Terrorist behavior as a product of psychological forces.

Post. (2003). *The psychological assessment of political leaders : with profiles of Saddam Hussein and Bill Clinton*. Ann Arbor: University of Michigan Press.

Post. (2007). *The Mind of the Terrorist: The Psychology of Terrorism from the IRA to al-Qaeda*: Palgrave Macmillan.

Post. (2010). "When hatred is bred in the bone:" the social psychology of terrorism. *Annals of the New York Academy of Sciences, 1208*(1), 15-23.

Price, B. C. (2012). targeting top terrorists: How leadership Decapitation Contributes to Counterterrorism. *International Security, 36*(4), 9-46.

Pyszczynski, T., Rothschild, Z., & Abdollahi, A. (2008). Terrorism, Violence, and Hope for Peace A Terror Management Perspective. *Current Directions in Psychological Science, 17*(5), 318-322.

Rapoport, D. (2001). *Inside terrorist organizations* (Vol. 10): Psychology Press.

Sandler, T., & Enders, W. (2007). Applying Analytical Methods to Study Terrorism. *International Studies Perspectives, 8*(3), 287-302.

Satterfield, J. M. (1998). Cognitive-Affective States Predict Military and Political Aggression and Risk Taking A Content Analysis of Churchill, Hitler, Roosevelt, and Stalin. *Journal of Conflict Resolution, 42*(6), 667-690.

Schafer, M., & Walker, S. G. (2006). *Beliefs and leadership in world politics: Methods and applications of operational code analysis*: Palgrave Macmillan.

Shapiro, J. (2007). Terrorist Organizations' Vulnerabilities and Inefficiencies: A Rational Choice Perspective. In J. Giraldo & H. Trinkunas (Eds.), *Terrorism Financing and State Responses* (pp. 56-71). Stanford, California: Stanford University Press.

Shayo, M., & Zussman, A. (2011). Judicial ingroup bias in the shadow of terrorism. *The Quarterly Journal of Economics, 126*(3), 1447-1484.

Shelley, L., Picarelli, J., Irby, A., Hart, D., Williams, P., Simon, S., . . . Stanislawki, B. (2005). Methods and Motives: Exploring Links between Transnational Organized Crime & International Terrorism (Vol. IJ-CX-1019). Washington D.C., United States: U.S. Department of Justice.

Shor, B., Bafumi, J., Keele, L., & Park, D. (2007). A Bayesian multilevel modeling approach to time-series cross-sectional data. *Political Analysis, 15*(2), 165-181.

Shughart, W., & William, F. (2011). Terrorism in rational choice perspective. *The handbook on the political economy of war*, 126-153.

Smelser, N. J. (2009). *The faces of terrorism: Social and psychological dimensions*: Princeton University Press.

Smith, A. G. (2008). The implicit motives of terrorist groups: How the needs for affiliation and power translate into death and destruction. *Political Psychology, 29*(1), 55-75.

Snyder, R. C. (1962). *Foreign policy decision-making: An approach to the study of international politics*: Free Press of Glencoe.

Stanton, J. A. (2013). Terrorism in the Context of Civil War. *The Journal of Politics, 75*(04), 1009-1022.

Steenbergen, M. R., & Jones, B. S. (2002). Modeling multilevel data structures. *american Journal of political Science*, 218-237.

Stern, J. (2003). The protean enemy. *Foreign Affairs*, 27-40.

Taylor, M., & Quayle, E. (1994). *Terrorist lives* (Vol. 94): Brassey's London.

Torres-Reyna, O. (2009). Panel data analysis: fixed and random effects. *Princeton University, Princeton, USA*.

Victoroff, J. (2005). The Mind of the Terrorist A Review and Critique of Psychological Approaches. *Journal of Conflict resolution, 49*(1), 3-42.

Walker, S. G. (2011). Anticipating attacks from the operational codes of terrorist groups. *Dynamics of Asymmetric Conflict, 4*(2), 135-143.

Walker, S. G., Schafer, M., & Young, M. D. (1998). Systematic procedures for operational code analysis: Measuring and modeling Jimmy Carter's operational code. *International Studies Quarterly, 42*(1), 175-189.

Wilson, M. C., & Piazza, J. A. (2013). Autocracies and Terrorism: Conditioning Effects of Authoritarian Regime Type on Terrorist Attacks. *american Journal of political Science, 57*(4), 941-955.

Wooldridge, J. M. (2003). Cluster-sample methods in applied econometrics. *The American Economic Review, 93*(2), 133-138.

Wright, A. L. (2013). Terrorism, Ideology and Target Selection.