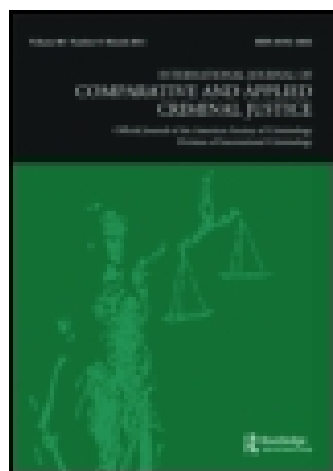


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The future of terrorism research: a review essay

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The future of terrorism research: a review essay

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This essay sets forth a research agenda to begin filling some key gaps in terrorism studies. Since the September 2001 Al Qaeda attacks against the World Trade Center towers and the Pentagon that claimed over 3000 lives, interest in terrorism research has increased. After these attacks, the United States and other governments prioritized the scientific study of the causes of and responses to terrorism. Importantly though, our review of the terrorism literature demonstrates that despite this progress, intriguing questions remain underexplored or altogether unexplored. This essay identifies four gaps in terrorism studies: (1) employing non-terrorist comparison groups, (2) broadening the dependent variable (focus of study), (3) exploring exceptions/anomalies to “established” findings, and (4) engaging measurement issues. We discuss these issues and outline a research agenda that could begin to fill these gaps.

Keywords: terrorism research; political violence research; extremist crime research; measurement issues

Introduction

This article sets forth a research agenda to begin filling some key gaps in terrorism studies. Since the September 2001 Al-Qaeda attacks against the World Trade Center towers and the Pentagon that claimed over 3000 lives (hereafter the “9/11 attacks”), interest in terrorism research has increased. After these attacks, the US and other governments prioritized the scientific study of the causes of and responses to terrorism. The US Department of Homeland Security’s (DHS) Science and Technology Directorate, for example, initiated its Center of Excellence program. This initiative created 12 research centers. Similarly, the US Department of Defense, National Institute of Justice, Bureau of Justice Assistance, National Science Foundation, the European Union, and countries across the globe have supported terrorism-related research projects. These studies have examined the etiology of terrorism, including incident, perpetrator, and organizational level explanations; the structures of terrorist organizations; and the effectiveness of counterterrorism strategies.

Leading terrorism scholar Andrew Silke has published a series of evaluation studies of terrorism research. Silke (2001) first examined studies published between 1995 and 2000 (just prior to the 9/11 attacks) and questioned their rigor. Over 95% of studies were unempirical, anecdotal, or used data in an unsystematic manner. Inferential statistics were rarely used, and, perhaps surprisingly, some studies relied upon no evidence at all. Silke found this unfortunate state of affairs bewildering because related disciplines like criminology and forensic psychology were expanding their use of inferential statistics. Despite

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the terrorism field's importance for policy, and in contrast to related disciplines, its research was substandard (Hamm, 2007; Lum, Kennedy, & Sherley, 2007; Silke, 2001; Victoroff, 2005).

In the past 12 years, the US and other governments have also made extraordinary investments to build bureaucratic infrastructures better equipped to respond to terrorist acts and other mass casualty events, and to develop strategies to deter and prevent terrorist behavior. Many of these changes, however, were made without the guidance of empirical research. In some cases, this was because research in the area was lacking. Thus, one goal of the increased funding by the US and other governments was to increase the quality and policy relevance of terrorism studies. Silke's (2008) follow-up study that looked at works published in the five years after the 9/11 attacks found that these goals were partially achieved. There was an increase in the number of terrorism studies, and in fact, 90% of such studies were conducted after the 9/11 attacks. While 150 terrorism books were published in 2000, nearly 2000 were published in 2002 and a new terrorism book is published every six hours (Silke, 2008, p. 28). There was also improvement in the field's use of statistics. Silke (2008, p. 36) found that "28 percent of articles [are] now using statistics. This is a definite step in the right direction and the big increase in inferential analysis in particular (going from 3 percent to 10 percent of articles) is an important shift."

Another benefit of the increased research funding was that it contributed to the creation, maintenance, and enhancement of terrorism event, perpetrator, organizational, and relational databases that played a part in the rising number of quantitative terrorism studies. These databases include the American Terrorism Study (ATS), Extremist Crime Database (ECDB), Global Terrorism Database (GTD), International Terrorism: Attributes of Terrorist Events (ITERATE) database, the RAND Memorial Institute for the Prevention of Terrorism (RAND-MIPT) incident database, and the Minorities at Risk Organizational Behavior (MAROB) dataset (Asal & Wilkenfeld, 2013; Enders & Sandler, 2006; Freilich, Chermak, Belli, Gruenewald, & Parkin, 2014; LaFree & Dugan, 2007; Smith & Damphousse, 2003). Scholars have used these databases, or collected their own data, to systematically investigate issues such as the causes of radicalization, disengagement from terrorism, the spatial distribution of terrorist attacks, terrorist organizations, the impact of legal and social interventions on the number of attacks, lone wolf attacks, suicide strikes, and fatal attacks against the police (Bakker, 2006; Braithwaite & Johnson, 2012; Chermak, Freilich, & Suttmoeller, 2013; Freilich & Chermak, 2009; Freilich, Chermak, & Caspi, 2009; Hafez, 2006; Horgan, 2009; Jurgensmeyer, 2003; LaFree & Dugan, 2007; LaFree, Dugan, & Korte, 2009; Lankford, 2013; McCauley & Moskalenco, 2011; Pape, 2003; Post, Sprinzak, & Denny, 2003; Sageman, 2004; Shapiro, 2013; Stern, 2003).

These empirical studies represent an improvement in the field's methodological rigor and policy relevance. Importantly though, our review of the terrorism literature demonstrates that despite this progress, intriguing questions remain underexplored or altogether unexplored. In the following, we identify four gaps in terrorism studies: (1) employing nonterrorist comparison groups, (2) broadening the dependent variable (focus of study), (3) exploring exceptions/anomalies to "established" findings, and (4) engaging measurement issues. This article discusses these underexplored issues and outlines a research agenda that could begin to fill these gaps.

Nonterrorist comparison groups

Future research should include nonterrorism comparison groups. As noted, until recently, most terrorism studies have relied on anecdotal accounts. Empirical studies examining the

etiology of terrorist offending and the spatial distribution of terrorist events have increased since the 9/11 attacks (Asal & Rethemeyer, 2008; Jurgensmeyer, 2003; LaFree, Dugan, Xie, & Singh, 2012; Sageman, 2004; Stern, 2003), but these studies usually lack non-terrorism comparison cases. This in turn makes it impossible to produce causal explanations and undermines terrorism prevention efforts (Victoroff, 2005). In contrast, researchers have compared violent to nonviolent extremist organizations. Recently, for instance, we investigated factors that distinguished violent far-right hate groups from nonviolent groups in the United States (Chermak et al., 2013). Our study was the first, in fact, to create a “complete universe” of both violent and nonviolent groups to make comparisons. We used the Southern Poverty Law Center’s (SPLC) annual Intelligence Report and Klan Watch publications to identify all known far-right hate groups that existed for at least three years in a row from 1990 to 2008 in the United States ($N = 550$). We randomly selected 50% of those groups and searched them in 26 web engines to uncover publically available information. Groups whose members committed at least one ideologically motivated violent crime were categorized as violent. Organizations whose members were not linked to any ideologically motivated violent crime were coded as nonviolent. Four key findings were that (1) groups advocating leaderless resistance tactics were more likely to commit violence; (2) groups linked to other hate groups were more likely to have members involved in violence; (3) groups that aggressively recruited new members were more likely to have violent members; and (4) groups that had a funding strategy were less likely to be involved in violence.

Since this study used a comparison group of nonviolent organizations, we are more confident in the findings and their potential for shaping terrorism prevention policies. Our study though only looked at far-right hate groups in the United States and relied on SPLC data. Future studies should replicate our approach in other countries across the globe. It is also important to expand the focus beyond far-right hate groups to other extremist organizations, such as far-right antigovernment extremists, Al-Qaeda-supporting groups, Hezbollah organizations, and Hamas-supporting groups, as well as far-left and animal and environmental rights extremist organizations.

There is also a need to employ similar strategies to terrorism incidents and targets.¹ Again, while the availability of terrorism event databases has led to an increase in statistical studies explaining the spatial distribution of attacks, this research to date has failed to examine nonattacks. Most studies obtain a “denominator” by aggregating incidents to some ecological unit (e.g., nation) and then modeling the difference in rates across units. This approach makes useful analyses of the situational determinants of terrorist incidents difficult.

Future research could consider using a case-control design (that incorporates a comparison group) to shed more light on situational factors. Importantly, the case-control design has rarely been used to study terrorism issues. The case-control design is often used in the biomedical area to examine the factors associated with rare diseases, and it samples on the dependent variable. The control sample is drawn from the population of people or places or targets that are eligible for the event of interest but have not been victimized. Comparisons are made between case and control samples to identify the covariates of victimization. Sampling on the dependent variable is often more efficient than taking a large random sample to find these rare events.

There are a variety of units that could be used to construct a case-control design to study terrorist attacks. One possibility is to identify locations where bombing, or IED, or shooting attacks occurred and then draw a control sample of locations in which such attacks did not occur. Targets such as buildings or monuments could also be the sampling

unit. In this case, the control sample would be buildings or monuments that were not the objects of attack. Comparisons of the case and control locations would identify the attributes that make the location or building that was attacked more attractive as a target.

The case and control samples can be stratified or matched in ways that hold constant various attributes of the event or location, so that one can more easily test the effects of attributes that are allowed to vary. It would be possible, for example, to introduce a stratum of iconic targets such as monuments or government buildings and a stratum of noniconic targets. Then iconic targets that are not attacked could be compared to such targets that are attacked to see what factors encouraged the selection of one iconic target from another. The same can be done across the case and control samples within the noniconic strata. These studies would be especially useful for prevention purposes. For example, scholars could empirically test situational crime prevention claims about attributes that make one target more attractive than another (Boba, 2009; Clarke & Newman, 2006).

One of the major challenges in a case-control design is to obtain a control sample that is representative of the population at risk of becoming a "case". If the sample excludes elements that are eligible for or at risk of victimization, then the covariates that distinguish cases from controls will not be exclusively factors that affect the risk of victimization. These covariates will also be the result of the sample design and not the etiology of victimization. One study by James Lynch explored the effects of staffing levels on the risk of victimization in jails. They wanted to see whether staffing levels were negatively associated with assaults. To investigate this question, they obtained a case sample of all assaults in the jail and identified them by time (minute) and cellblock. They drew a control sample of cell-block minutes in which an assault did not occur. They also assessed the staffing levels for the cell-block minutes in the case and control samples. If staffing levels affect victimization, the odds of being victimized will be much greater in cell-block minutes with low staffing levels than in cell-block minutes with full staffing levels. The odds of being in the case as opposed to the control sample when staffing is below that required was compared to the odds of being in the case as opposed to control sample when staffing was at the requires level. If the ratio of these odds was different from 1.0, then there was a relationship between staffing and victimization risk.

The same kind of design could be used, for example, to investigate the factors affecting the risk of terrorist attacks. Locations (and times) that experienced attacks would be the case sample and randomly selected locations (and times) not experiencing an attack would be the control sample. Attributes of these locations that have odds ratios other than 1.0 are risk factors. Various types of stratification can be used to reduce or hold constant factors that can vary across case and control samples. This will facilitate isolating the effects of subclasses of risk factors. Limitations on stratification will be imposed by the availability of information on the cases and the controls. It would not be possible, for example, to create strata in the cases and the controls for attributes of the offender, since controls are nonvictimizations that do not have an offender. Similarly, type of offender cannot be entered into the analysis as a covariate for the same reason. It would be possible to divide the case sample into those committed by one group of offenders and those committed by another and then to compare both of these groups to the control sample. If the risk factors identified are different for the two offender subsamples, then one could say that the factors affecting target choice differed across offender groups.

Finally, researchers must also study nonterrorists on the individual perpetrator level. As Freilich and Chermak (2009) explained, scholars have interviewed American, Asian, European, South American, African, and Middle-Eastern terrorists subscribing to a variety

of ideologies (Berko & Erez, 2005, 2007; Hafez, 2006; Hassan, 2001; Horgan, 2004; Jamieson, 1989; Jurgensmeyer, 2003; Post et al., 2003; Stern, 2003). These interviews, however, invariably excluded nonterrorist individuals who subscribed to the same extremist ideologies and did not turn to violence. This is a significant omission because it hinders our ability to compare individuals who became terrorists to persons who did not become terrorists to uncover how they differ from each other (Victoroff, 2005).

Interestingly, the few studies that compared characteristics of terrorist perpetrators to nonterrorists mostly did so in terms of sentencing by the courts and the government response. Smith and Damphousse (1998, 1996) matched terrorist perpetrators from their ATS to a sample of nonterrorist offenders from the Federal Court Cases Integrated Database, run by the Federal Judicial Center. This database compiles information for federally handled criminal cases across the country with the unit of analysis being individual defendants. It was thus perfectly positioned to produce a control group of nonterrorist criminal offenders to study sentencing issues.

This same type of strategy – comparing terrorist perpetrators to a nonterrorist comparison group – should be used to study the etiological issues. This raises an important question though: What should the comparison group include? The Smith and Damphousse (1998, 1996) approach suggests comparing terrorists to nonterrorist criminals. These terrorists are offenders investigated by the Federal Bureau of Investigation (FBI) and subsequently federally indicted for their crimes. Some scholars have followed this strategy and compared terrorists and extremist offenders motivated by ideology to nonterrorist offenders and extremists who offend for personal nonideological reasons. Rather than rely on FBI determinations of terrorist affiliations, the ECDB project has developed a list of attitudinal and behaviors indicators, or inclusion criteria, which can be systematically applied to offenders to determine their affiliation to domestic extremism.

In one study, Gruenewald (2011) used data from the ECDB to compare homicide cases with “average” homicides sampled from the Uniform Crime Report – Supplementary Homicide Report. In a follow-up study, Gruenewald and Pridemore (2012) more narrowly focused on far-right homicides that were ideologically motivated. In this way, the authors considered offender attitudes and their motivations for committing extremist crimes as inclusion criteria. Parkin, Freilich, and Chermak (2014) similarly used ECDB data to compare the victims of ideologically motivated far-right homicide attacks to the prior literature’s findings on the victims of “regular” homicides committed by nonextremists. A second project by Parkin and Freilich (in press) compared the victims of far-right ideologically motivated homicides to the victims of nonideologically motivated homicides (i.e., homicides committed for personal reasons) committed by far-rightists.

This research is important, but it is possible that because terrorists and nonterrorists are motivated by different factors (e.g., ideology, profit, and personal vendettas) (LaFree & Dugan, 2004) that it might not fully explain the emergence of terrorists. A few studies have compared the characteristics of terrorist perpetrators to aggregate attributes of representative subjects from the general population or the terrorist’s reference group (Krueger, 2007). Arguably, though, such analyses also fail to take into account the unique ideological motivations of terrorists.

Another approach, which to our knowledge has never been taken, would create a listing of noncriminal extremists that have similar grievances and subscribe to the same extremist ideological belief system as the terrorists. Researchers would compare extremists who used violence to further their goals to extremists who did not use violence to uncover the key attributes where they differ. This would be an important contribution because although many might assume that all extremists are terrorists, in fact less than 1%

of persons subscribing to extreme beliefs actually engage in terrorism (Leuprecht, Hataley, Moskalenko, & McCauley, 2010). Such a strategy would yield valuable information that could be used by analysts and other counterterrorism specialists.

Broadening the dependent variable and focus of study

A second important issue is that the field should move beyond the narrow contours of “terrorism.” Scholars need to begin systematically collecting data on nonviolent terrorism-related crime, including financial offenses, cyberterrorism and other Internet crimes, individuals linked to extremist ideologies, as well as responses to these acts. The definition of terrorism has changed over time, and currently, there are dozens of definitions with different inclusion criteria (Hoffman, 1998; Schmid & Jongman, 1988; Weinberg, Pedhazur, & Hirsh-Hoefler, 2004). It is also true though that today almost all definitions require terrorist acts to be ideologically motivated crimes committed by nonstate actors that use “force or violence” (Freilich, Chermak, & Simone, 2009; Weinberg et al., 2004). Most terrorism databases and studies thus do not examine either financial or cybercrimes and Internet-related crimes committed by extremists even if they are ideologically motivated simply because they are nonviolent offenses. Nor do they systematically investigate the full spectrum of responses by governments and nonstate actors to terrorism and these other extremist crimes (Freilich et al., 2014, 2009).

In fact, we created the ECDB in 2006 to capture “nonviolent” financial crimes (in addition to the violent offenses) committed by far-rightists and supporters of Al-Qaeda, Hamas, Hezbollah, and related groups in the United States (Freilich et al., 2014). Our survey of the 50 American state police agencies had documented that far-right antitax (i.e., financial) offenders were rated fourth out of more than 15 extremist types, in terms of arrests (Freilich et al., 2009). We therefore expected to identify large numbers of financial crimes.

We first devised a measurement strategy to count financial crimes. Belli (2011) explains that financial offenses are often committed during larger criminal operations involving multiple perpetrators and jurisdictions over an extended period of time. Therefore, it was important to create a unit of analysis that encompassed those nuances of financial crimes. The ECDB developed the concept of “financial scheme,” defined as an illicit financial operation involving a set of activities (i.e., techniques) carried out by one or more perpetrators to obtain unlawful gain or other economic advantage through the use of deliberate deception (e.g., a money-laundering scheme that “cleans” money from illegal drug smuggling to fund a terrorist mission) (Belli, 2011; Freilich et al., 2014).

As expected, we found that extremists were heavily involved in financial crimes. The ECDB identified over 700 financial schemes with a loss exceeding one billion dollars that were committed by far-rightists and Islamist extremists in the United States since 1990. Far-rightists committed over 545 schemes, most commonly tax avoidance crimes. Al-Qaeda, Hamas, Hezbollah, and similar inspired extremists committed over 155 financial schemes such as money-laundering, identity theft, and material support to terrorists. Focusing on these crimes also highlighted important information relevant to preventing ideologically motivated violent crimes. Over 25% of the 155 Islamist-linked financial schemes were linked to violent crimes (including terrorist acts), while over 40% were linked to other financial schemes. Similarly, some far-right tax refusal activists have escalated to more violent acts. Notorious far-rightist Scott Roeder engaged in tax refusal in the 1990s, for instance, before murdering abortion providers over 10 years later.

Belli's (2011) preliminary analysis of ECDB financial data found that while far-right and Islamist extremists in the United States engaged in different types of financial schemes, both relied upon nonextremist accomplices who provided useful resources for the crime commission process. These findings have policy implications and emphasize the importance of paying attention to nonextremist offenders and examining how they were recruited and then aided the extremists who initiated these crimes (Belli, 2011; Freilich et al., 2014; Kerodal, Freilich, & Chermak, in press). Importantly, the study of financial offending by extremists is in its infancy, and there remain many unexplored questions for scholars to engage. In the following, we outline three examples of issues that should be studied.

First, researchers should investigate if the economic climate is related to the type of financial schemes that extremists commit. Are Ponzi schemes, for example, more likely to be committed in times of economic growth, while mortgage fraud schemes more likely to be perpetrated during times of economic contraction? Also, as Chermak, Freilich, and Shemtob (2009) have pointed out, extremist groupings are not monolithic and that it is important to pay attention to differences within the movement. Thus, researchers should explore how financial schemes vary across group types. Do ideological groupings (e.g., Al-Qaeda versus Hezbollah or Sovereign Citizens versus Skinheads) mediate the effect of the economic climate?

Second, researchers must study whether financial crimes act as a gateway crime, or a stepping-stone, to more serious crimes. While there is anecdotal evidence, this important issue has never been empirically studied. Third, there could be great value in exploring what the profits generated by financial crimes were used to fund. Our preliminary research has documented that extremists committing financial crimes have accumulated hundreds of millions of dollars in illicit profits since 1990. It would be useful for analysts and others to have access to data that indicate whether these profits were used for personal purposes (i.e., greed), to fund specific missions, or for maintaining or enhancing the organization's capacity.

Meanwhile, systematically collected data on cyberterrorism and other Internet-associated crimes committed by extremists is rare. Scholars and policymakers have written research essays on cyberterrorism, but much of this is anecdotal. Extremists have used the Internet to conduct cyberterrorism and hacker crimes against their enemies. Although there is no consensus on defining cyberterrorism, one popular definition operationalizes it as unlawful strikes through cyberspace against government computers and their information that result in fatalities or property violence *or* generate great fear, to achieve political objectives (Holt, 2012; Keene, 2011; Weimann, 2005). Wright (2008, p. 16, see also Weimann, 2005) notes that the Internet can be used to enhance communication between groups and provide a mechanism to coordinate cyberattacks. In addition, extremists use the Internet to conduct hacker crimes. Weimann (2005) explains that there are four types of hacker crimes. First, hacker crimes include virtual sit-ins, such as planned large-scale visiting of specific sites to crash them. Second, there are campaigns to overwhelm an email address through sending it thousands of messages. Third, hacking crimes encompass breaking into computers to steal information and creating or using viruses and worms to disable and infect computers. Fourth, terrorist organizations may use other virtual systems for hacking (Holt, 2012). Most of these attacks do not result in violence and are therefore excluded from terrorism databases and are usually not studied by scholars.

The lack of attention paid to these crimes is unfortunate considering the threat they pose. Our survey of the 50 American state police agencies found that they viewed cyberterrorism as a danger to public safety both nationally and to their specific states

(Freilich et al., 2009). Indeed, over the past two years, our discussions with counter-terrorism analysts from the United States, Canada, and elsewhere revealed a strong desire for systematically collected data on cyberterrorism and other Internet-related crimes akin to that collected on violent terrorist incidents. Both the FBI and the DHS also view cyberterrorism as a threat to public safety (DHS, 2011; FBI, 2013).

Currently, it is unclear how many cyberterrorism attacks have actually targeted the United States. Some claim such attacks have not occurred while others tabulate between 150 and 200 attacks for specific periods (Lewis, 2013; Maras, 2013; Tehan, 2013). The reason for this divergence is that there is disagreement about both how to define cyberterrorism and the unit of analysis to use to count these strikes. Similar to the ECDB's expansion to nonviolent crimes, terrorism scholars need to devise a strategy to collect data on nonviolent cyberterrorism attacks and other Internet crimes committed by extremists. This requires creating a unit of analysis to properly count these offenses because the "incident" level (i.e., temporally and spatially distinct) may not suffice. Like financial offenses, cybercrimes could encompass multiple jurisdictions over an extended time period. Next, inclusion criteria, a codebook, and a strategy to systematically identify all cybercrimes and Internet crimes that satisfy the criteria must be devised. Open sources must then be used to collect all publicly available information on each cyber-offense that coders could use to fill in codebook attributes. Once these data are collected, scholars will be able to explore a host of policy-relevant questions for the first time.

Finally, another understudied topic is responses to terrorist attacks. Similar to databases that track terrorist incidents, the responses to these attacks should be systematically identified and coded. The actions of terrorists result from their goals and grievances as well as the actions of their opponents and others (McCauley & Moskalenco, 2011). Recently, scholars have begun to partially address this point, for example, by looking at the impact of counter-hijacking policies (Dugan, LaFree, & Piquero, 2005), interventions against the Irish Republican Army (IRA) in Northern Ireland (LaFree et al., 2009), and laws protecting abortion clinics in the United States (Pridemore & Freilich, 2007). The impact of Israeli responses to Palestinian terrorism has also been examined (Dugan & Chenoweth, 2012), and these same researchers are building a countermeasures database in select countries. In contrast to terrorism event databases that identify and code the universe of attacks across the globe, the tracking and coding of the responses is piecemeal. This effort should be expanded to all nations.

Most research has focused on the interaction between terrorists and government responses to their attacks and ignored nonstate actors. But, terrorist attacks are influenced not only by responses from governments but from other terrorist groups and from NGOs as well. LaFree et al. (2009) point out that responses to IRA attacks came from both the British government and the loyalist terrorist factions. In another study, Bloom (2004) found that actions of one terrorist group influence other organizations as they compete and try to outdo each other to further their cause. Perhaps, more significantly, Feilich, Chermak, and Caspi's (2009) case studies on the rise and fall of violent far-right organizations stressed the impact of responses by nonstate actors to their violent attacks. They noted, for example, that the watch group the SPLC was instrumental in the decline of the far-right Aryan Nations hate group. The SPLC successfully sued the Aryan Nations in response to murders committed by its supporters against minorities and bankrupted it. A full understanding of countermeasures to attacks by terrorist groups and their supporters should include responses by both government and NGOs.

Meanwhile, social movement scholars note that terrorist groups are part of a social movement that includes noncriminal organizations and individuals (Della Porta, 2006).

Many actions committed by the social movement – including the terrorist group – to further their cause are legal including rallies and charitable work. Yet, researchers invariably study the impact of countermeasures on terrorist attacks in a vacuum and do not consider what effect these interventions have on the larger category of social movement activity including legal behaviors (Pridemore & Freilich, 2007). It is important that future studies look at the impact of interventions by governments and NGOs on terrorist acts, other extremist crimes, as well as legal activities conducted by the terrorists and others in the larger movement. The interplay between the terrorism and legal activities is an especially intriguing issue that deserves more attention.

Studies examining the impact of countermeasures on terrorist groups usually operationalize success or failure as the number of attacks (fewer attacks after an intervention translate into a successful intervention), lethality of attacks (fewer deaths after a response indicates a successful intervention), or the time between attacks (more time elapsing between attacks after the intervention is deemed a successful response) (LaFree et al., 2009; Pridemore & Freilich, 2007). Shapiro (2013, p. 11) takes issue with this strategy. He asks his readers to:

Consider an analyst charged with assessing whether a new counterterror policy is working. The number of attacks or nature of violence being conducted by a group is an ambiguous indicator on this score. Because success for terrorists is measured in terms of political impact, not in terms of numbers killed [or time between attacks] or attacks conducted, the vast majority of terrorist attacks try to achieve a politically optimal level of violence that is less than what they would manage if they sought only to kill. As such, an observed increase in the rate of attacks can mean the group has become more efficient, or it can mean leaders have been placed under so much pressure that they gave up control and operatives responded by ramping up the rate of attacks Given this ambiguity, a better process for evaluating policies is to look at organizational changes.

Yet, this approach has rarely been taken by the few studies that have evaluated countermeasures and other interventions. Critical to future research on countermeasures is a methodological rigor. Lum, Kennedy, and Sherley's (2006) Campbell Collaboration review of counterterrorism studies concluded that evaluation studies are rare. Furthermore, the few evaluation studies that were conducted found that interventions often had unintended consequences. These researchers surmised (2006, p. 511) that there remains a need to build a research infrastructure, supported by government officials, policymakers, and researchers, to overcome these weaknesses.

Exceptions to conventional wisdom

Another issue that deserves more attention is providing explanations for empirical results that undermine established findings in the field. Future research should explain why these studies diverge. Currently, the consensus among terrorism scholars is that scientific research does not support popular opinion associating terrorism with poverty or lack of education. Berrebi (2007) and Krueger (2007; see also Victoroff, 2005), for example, demonstrated that Palestinian, Hezbollah, the IRA, and other types of terrorists were not more impoverished, nor less well educated, than the general populations of their regions.

But, there is an exception to this "rule". American far-right terrorists have been found to be more deprived than others. Our recent research that used ECDB data showed that over 40% of far-rightists perpetrators who committed an ideologically motivated homicide in the United States between 1990 and 2012 were unemployed at the time of the attack

(Gruenewald, Chermak, & Freilich, 2013). This percentage was higher than that of Al-Qaeda supporters or eco-extremists or animal rights extremists who also committed ideologically motivated violent attacks in the United States as well as the general population. This finding converges with earlier studies. Brent Smith's (1994) seminal work based on data from the ATS found that right-wing terrorists were less educated and had lower occupation levels than left-wing and international terrorists. Hewitt (2003) and Handler's (1990) comparisons of American terrorists similarly found far-rightists to be more deprived than far-left terrorists (see also Blazak, 2001; Ezekiel, 1995; Hamm, 1993). Macro-level research focused on Turkey has also found an association between background factors such as poverty and terrorism (Akyuz & Armstrong, 2011). Krueger (2007) has noted that the Turkish conflict may be an exception to the rule that poverty is mostly unrelated to terrorism on the macro-level. Berrebi's (2009) thorough review of the terrorism literature showed that poverty was not only mostly unrelated to terrorism on the micro-level, but that regardless of operationalization (i.e., location of attack, or the perpetrator's country of origin), the relationship was just as weak on the macro-level.

A third "established" empirical finding is that contrary to conventional wisdom and early assertions by some scholars, terrorists were in fact usually not mentally ill and did not differ psychologically from others. Merari's (2005; see also Pape, 2005) examination of failed Palestinian terrorists found that they were unlikely to suffer from psychopathology and dysfunctional characteristics. Sageman's (2004) open-source study on 172 perpetrators who joined the global jihad similarly found that most did not suffer from a psychological or mental illness.

Our recent research (Gruenewald et al., 2013), however, has raised questions about whether this holds for all types of terrorists. We compared far-right loners who committed an ideologically motivated homicide alone and who were unaffiliated with an organization to far-right homicide perpetrators who were affiliated with a group or committed the crime with others. We examined 23 attributes and found that far-right loners differed from the others on three variables, including evidence of mental illness. Far-right loners were more likely than group-affiliated extremist perpetrators to have had a history of mental illness. Other scholars (McCauley & Moskalenko, 2011) have also wondered whether lone wolves might be more likely to suffer from mental illnesses compared to other terrorists and the general population.

It is important for future research to explain why these exceptions exist. Studies should investigate why poverty is generally unrelated to terrorism, but it appears to play a role in some specific contexts. Studies should move from treating terrorist perpetrators as independent variables to using them as outcome variables and use other attributes to explain their variation. In other words, scholars should treat the economic status and education of individual terrorists as dependent variables and devise hypotheses and measures to explain why far-rightists are less educated and more impoverished than their left-wing counterparts. This same strategy should be applied to explicate why loners are more likely to be mentally ill than other terrorists.

Measurement issues

The last underexplored area that that future research should engage relates to measurement issues. We noted that historically terrorism research was unempirical but that recently the number of statistical studies has increased due to the greater availability of terrorism databases. We also stated that the failure of most studies to use control groups has

hindered the advance of terrorism research. This section discusses additional methodological and measurement issues that plague both qualitative and quantitative studies.

Despite the common refrain that it is difficult to talk to terrorists due to safety and access issues, scholars have actually interviewed terrorists from almost every continent and many extremist ideological belief systems (Freilich & Chermak, 2009). It is also true that most of these interviews were retrospective and asked the terrorists to provide explanations about their acts that occurred in the past, in some cases long ago. Horgan (2009) explained that the “involvement and engagement in terrorism result in changes to those who join” (p. 4). This raises the possibility that these studies suffered from “retrospective construction,” the human tendency to construct specific moments as significant in retrospect. Yet, most terrorism studies that employ the interview method fail to note this methodological hurdle and do not explain what steps, if any, were taken to overcome it. In addition, many interview studies do not provide much detail on either the interview setting or what protocols, if any, were relied upon. Nor do they note if the protocols were validated, and if so how they were validated. Similarly, it is not unusual for researchers to interview a terrorist who only speaks a foreign language that they are unfamiliar with. Such interviews require a translator, but studies rarely discuss the selection of the translator. They also rarely outline what steps, if any, were taken to validate their interview protocol in the foreign language. Studies also do not normally discuss whether interviewing an individual from a different culture, sometimes in a foreign location, influenced the interview and what steps, if any, they took to address this (Horgan, 2004; Orsini, 2013). It is hoped that qualitative terrorism researchers more fully engage these issues.

Other problems remain with many quantitative terrorism studies. Again, scholars have increasingly made use of terrorism databases to conduct statistical terrorism studies and this has much improved the field. But, as we noted in prior work (Chermak, Freilich, Parkin, & Lynch, 2012), such studies are only as reliable and valid as the data that they use. Unlike criminological studies, terrorism scholars that direct these databases have not examined measurement issues that could undermine the reliability and validity of their data. Many criminological studies, for instance, that examine offending or victimization and employ multiple coders discuss inter-rater reliability. Normally, 20% of their cases are coded by different coders and their values compared. Interestingly, there are almost no studies that use terrorism databases that discuss inter-rater reliability. At times even the issue of missing values is not engaged.

In fairness, however, our work that introduced the ECDB (Freilich et al., 2014) highlighted that terrorism databases differed from some criminological studies because they are not static. Researchers constantly identify new information that relates to previously identified cases, and thus, the values of attributes are often updated. We also argued that many terrorism studies use demographic attributes such as race, gender, and age for which one would not expect coders to differ since the value is usually clearly stated in the open sources (and there is little room for debate). The ECDB has conducted preliminary examinations of inter-rater reliability and concluded that for the attributes just mentioned coders agreed over 90% of the time. We explained that when divergences occurred, it was not because coders coded different values but that one coder found a value in the open sources while others did not. This is why it is important to have multiple researchers to search and code to increase the likelihood of finding and coding all relevant information. Nonetheless, it is possible that for other variables, there might be less agreement among coders (e.g., the level of a perpetrator's ideological commitment to

the cause). The ECDB is continuing its examination of reliability issues. It is clear that other database must also focus on this important issue.

Relatedly, there have been few studies that have looked at selectivity bias. Again, scholars have responded innovatively to overcome some of the weaknesses of terrorism research by constructing databases of materials collected from open sources. Although this growth has helped advance the field, there is little research that critiques such databases. There are several steps involved in putting together an open-source database. First, sources must be identified and then mined to uncover incidents, groups, terrorists, or countermeasures (or whatever the focus of the research initiative). These efforts attempt to identify a sample of cases that are consistent with a specific set of inclusion criteria. Once a listing of incidents has been identified, the second step is to gather materials that provide information on it. These materials can be examined electronically or with human coders to collect variable-related information. The final step (prior to analysis) is to arrange these materials so that they are useful for analysis. The obstacles and potential data weaknesses of these different steps overlap somewhat as the nature of the search protocol and reliance on particular sources may impact the quality of data.

We recently compared selectivity bias across 10 different sources of terrorism incident data (Chermak et al., 2012). These 10 sources were among the key sources used to construct the ECDB's far-right homicide incident database. The article examined whether each source correctly included events in their database (compared to each database's inclusion criteria). We also conducted a catchment–recatchment analysis to explore how the reliance on additional sources impacted the quality of a database.

This research resulted in several notable findings. First, there was extraordinary variation in the percentage of homicides covered in each source. Some sources, for example, had less than 10% of the homicides and others had almost three-quarters of the homicides. Thus, we raised the concern that relying on the sources that only covered a small percentage of the homicides could produce unrepresentative findings. Second, the catchment–recatchment analysis indicated that adding sources added homicides to the database. We concluded that relying on multiple, overlapping sources is critical for building open-source databases. Third, although victim, perpetrator, and incident characteristics were generally similar across the different source databases, the most divergence occurred for the databases that included the fewest percentage of homicides.

Fourth, although we concluded that selectively bias may be less of a concern than initially feared, we suggested that scholars construct database error profiles to identify possible problems and offer solutions to those working with these data. Error profiles list nonsampling errors that could occur in each step of the database's creation. For most terrorism databases, this would include errors that could occur in identifying cases that meet its inclusion criteria (excluding cases that should have been included and including cases that should have been omitted) and decisions made by coders when coding included cases (Chermak et al., 2012). These errors are relevant to all event-level terrorism databases.

An examination of the first issue, errors in identifying cases that meet the database's inclusion criteria, would outline reasons as to why cases would be incorrectly included or excluded. It could be, for instance, that attacks that meet the database's criteria are never reported or are reported but are misidentified as a nonideologically motivated crime or an accident. There are of course many other possible reasons as to why a case that should have been included was not. Some of these reasons will depend upon the specific database's inclusion criteria and protocols. This is why each database must

construct its own error profile, which will likely differ from other databases profiles in certain respects.

Finally, as the databases become more accessible and popular, a greater number of researchers who played no part in their creation are using them. These scholars must rely on the databases codebooks and descriptions to familiarize themselves with the data. Our discussions with the directors of other major terrorism databases indicate that not surprisingly they are regularly asked to review journal articles published by others that use their databases. Often, these directors encounter studies that employ incorrect variables or use the data incorrectly. There could be value in creating short classes, similar to those organized by the Interuniversity Consortium for Political and Social Research, where the directors of the major terrorism databases (e.g., ATS, ECDB, GTD, ITERATE, MAROB, and Research AND Development (RAND) Corporation) offer workshops on their databases. These courses could review the creation of the database and discuss its codebooks and how to correctly use their data.

Conclusion

Judging by the pace of growth and sophistication that we have witnessed in the past several years, there is reason to be optimistic about the future of terrorism studies. Following the 9/11 attacks, new life was breathed into this area of research as government agencies allocated tens of millions of dollars toward new projects. Crucial for maintaining this level of vitality, multidisciplinary research teams across the nation have been assembled to address critical issues of terrorism and homeland security in the twenty-first century. Innovations in theoretical and methodological approach have flourished as new resources have become available for establish scholars, and students and emerging scholars have found academic homes in terrorism studies. Within the context of what we perceive to be four lingering gaps in terrorism studies, we offered several ideas for advancing the field. It is our hope that this article can inspire new research and help steer to the terrorism studies toward continued progress.

Note

1. This section's material on targets/incidents draws from a presentation we gave at National Consortium for the Study of Terrorism and Responses to Terrorism (START) and a report previously submitted to START (Freilich, Chermak, Lynch, & Parkin, 2008).

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