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Homicide Studies published online 12 October 2012
DOI: 10.1177/1088767912462033

The online version of this article can be found at:
http://hsx.sagepub.com/content/early/2012/10/11/1088767912462033

Published by:
SAGE
http://www.sagepublications.com

On behalf of:
Homicide Research Working Group

Homicide Studies
XX(X) 1–20

DOI: 10.1177/1088767912462033
http://hs.sagepub.com

A Comparative Analysis of Suicide Terrorists and Rampage, Workplace, and School Shooters in the United States From 1990 to 2010

Adam Lankford[1]

Abstract

This study presents results from the first combined quantitative assessment and comparative analysis of suicide terrorists and rampage, workplace, and school shooters who attempt suicide. Findings suggest that in the United States from 1990 to 2010, the differences between these offenders ($N = 81$) were largely superficial. Prior to their attacks, they struggled with many of the same personal problems, including social marginalization, family problems, work or school problems, and precipitating crisis events. Ultimately, patterns among all four types of offenders can assist those developing security policy, conducting threat assessments, and attempting to intervene in the lives of at-risk individuals.

Keywords

suicide terrorism, rampage shooting, school shooting, workplace violence, murder-suicide

Introduction

There is a long history of terrorists, rampage shooters, workplace shooters, and school shooters carrying out acts of murder-suicide against unarmed civilians. However,

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these offenders have rarely been assessed in the comparative context that seems natural, given the essential similarities of their attacks.

For instance, suicide terrorists have usually been assumed to be fundamentally different from rampage, workplace, and school shooters, even when the latter types commit suicide during or immediately following their attacks (Carey, 2007; Lankford & Hakim, 2011). One proponent of this view is political psychology professor Jerrold Post, who is also founder of the CIA's *Center for the Analysis of Personality and Political Behavior* and chair of the American Psychiatric Association's *Task Force for National and International Terrorism and Violence*. Post has insisted that suicide terrorists are mentally healthy, while suicidal mass shooters are mentally troubled (Carey, 2007). Many other scholars have claimed that suicide terrorists are motivated purely by ideology, not personal problems, and that they are not even suicidal (Pape, 2005; Post et al., 2009; Townsend, 2007). By contrast, several recent studies suggest that this conventional wisdom may be flawed and that there may be critical similarities between some rampage shooters and suicide terrorists (Lankford & Hakim, 2011; Lieberman, 2006; Omer & Kremer, 2003). However, much more analysis is needed.

In addition, rampage, workplace, and school shooters have rarely been assessed jointly, despite the primary definitional difference between them being the location of their attacks. Some speculative comparisons have been made. For instance, Newman et al. (2004, p. 58) have suggested that "like school shooters, workplace shooters are arguably attacking not just individuals but the institution itself." However, other important similarities and differences may exist. This study was designed to identify them, and thus presents results from the first combined quantitative assessment of these four types of attacks and attackers.[1]

Previous Scholarship

Past research has identified a number of risk factors for conventional suicide. Perhaps most notably, Durkheim (1897) created a theory of suicide based on four general types: egoistic, anomic, fatalistic, and altruistic. As he theorized, egoistic suicides are caused by social disconnection and isolation. Since connections to other people function as a moderating force on the emotional peaks and valleys of an individual's life, someone who lacks these connections may be more susceptible to depression and disillusionment (Durkheim, 1897). In turn, anomic suicides are caused by a lack of direction and purpose. When someone does not know where he or she fits in society—and lacks a role to fill—that individual's sense of confusion and purposelessness may increase the likelihood of suicide. Fatalistic suicides are caused by desires to escape oppression and pain. When people feel trapped by their circumstances and that suffering is inevitable, they may seek a premature death. And finally, altruistic suicides are caused by the feeling that collective needs far outweigh individual self-worth. In these cases, individuals may come to feel that it is their duty to commit suicide (Durkheim, 1897).

Subsequent research has shown that these causes of suicide often interact, so that a single individual may struggle with anomic, egoistic, fatalistic, or altruistic urges on the path to suicide (Maris et al., 2000). In addition, studies of suicide have identified a

number of specific risk factors for suicide, including social isolation, depression, shame, hopelessness, rage, a stressful family life, a romantic breakup, failures at work or school, or a precipitating crisis event (American Foundation for Suicide Prevention, 2010; Durkheim, 1897; Maris et al., 2000; National Institute of Mental Health, 2009; Yellow Ribbon Suicide Prevention Program, 2009).

Since these are well established risk factors for conventional suicide, but not necessarily connected to murder-suicide, their relevance to this study might be doubted. However, there has been a significant amount of scholarship on rampage, workplace, and school shooters, which suggests that these offenders are often motivated by personal problems that correspond with Durkheim's (1897) theories of suicide and the common risk factors for suicide. For instance, these offenders often struggle with social marginalization, family problems, work or school problems, and precipitating crises (Ames, 2005; Duncan, 1995; Fox & Levin, 1994; Kelleher, 1997; Langman, 2009a; Lankford & Hakim, 2011; Larkin, 2009; Lieberman, 2006; Newman et al., 2004; Newman & Fox, 2009; O'Toole, 2000; Rugala, 2003; Thompson & Kyle, 2005; Tonso, 2009; Vossekuil et al., 2002; Windham et al., 2005; Workplace Violence Prevention Operations Committee, 2007).

Conceptually, these struggles can be linked back to Durkheim's typology. For instance, both social marginalization and family problems may be evidence of Durkheim's egoistic type—individuals who lack the emotional support of friends or family and have thus become more susceptible to depression. In turn, work or school problems may be evidence of Durkheim's anomic type. Since work and school are directly related to vocational pursuits, individuals who struggle in these contexts may feel like they have lost their sense of purpose. Finally, various precipitating crises may provoke a range of feelings—including egoistic, anomic, fatalistic, or altruistic urges—depending on the specific nature of the crisis that occurred.

This study was designed to employ these concepts in the first combined quantitative analysis of suicide terrorism attacks and rampage, workplace, and school shootings that involved suicide attempts. Comparisons are made across offender characteristics—including age, sex, and presence of social marginalization, family problems, work or school problems, or precipitating crises in these offenders' lives. In addition, comparisons are made across attack characteristics, including fatalities, casualties, and whether or not the attack involved successful suicide attempts, fully self-controlled and self-harming suicide attempts (i.e., shooting oneself, instead of blowing oneself up alongside others), or suicide notes/written explanations. This study should thus yield original findings on some important similarities and differences between the four types of attacks and attackers.

The Present Study

Criteria for Case Inclusion

This study was designed to analyze terrorism, rampage, workplace, and school attacks that involved suicide attempts and occurred in the United States between 1990 and

2010. Attacks that occurred before 1990 were excluded to ensure that data would be available at a relatively consistent level for the entire data set time frame. As the New York City Police Department's recent report on active shooters explains, information that predates Internet news reporting is generally less comprehensive and harder to find (Kelly, 2010). In addition, to eliminate more conventional murder-suicides, attacks were excluded if they involved fewer than two victims or were primarily domestic in nature (targeting family members or significant others). There is scholarly precedent for these decisions. Newman et al. (2004) similarly employed the multiple victim criterion, and Kelly (2010) emphasized that attacks that do not spill over to victims beyond an individual target appear to be a fundamentally distinct type of criminal behavior. In turn, studies of murder-suicide occurring in domestic situations have shown that perpetrators are often motivated by sexual jealousy and the desire to maintain power and control over their intimate partners, much like other perpetrators of domestic violence (Aldridge & Browne, 2003; Block & Block, in press; Campbell, Glass, Sharps, Laughon, & Bloom, 2007). This seems like a distinct type of murder-suicide from that which is the focus of the present study and thus does not warrant inclusion.

Attacks were classified using the following definitions. Individuals who attacked at a school, college, or university that they had ever attended were deemed "school shooters." Individuals who attacked at a place that they had ever worked were deemed "workplace shooters." The criteria for rampage shooting was similar to that used by Newman et al. (2004). Rampage shootings included all attacks that were not terrorism, school shootings, or workplace shootings, that occurred on a "public stage before an audience," and that involved some victims who were "chosen for their symbolic significance or targeted at random" (Newman et al., 2004, p. 330). It should be noted that the phrase "rampage shooting" is sometimes used interchangeably to refer to school shooters and workplace shooters, without the distinctions identified above and employed in this study (Newman et al., 2004). By making rampage shooters a separate category, this study avoided the assumption that those who attack at their place of work or school are the same as those who attack at a mall, restaurant, gym, or other public establishment—and thus allowed for comparative analysis at a greater level of precision.

The Federal Bureau of Investigation's definition of terrorism was used to assign attacks to the suicide terrorism category. This definition is as follows: "The unlawful use of force or violence against persons or property to intimidate or coerce a Government, the civilian population, or any segment thereof, in furtherance of political or social objectives" (FBI, 2009). Although applying this definition to real life cases can sometimes be challenging, it was relatively easy with the offenders in this data set. In most cases, they openly expressed their desire to coerce the U.S. government in their preattack communications (Adkisson, 2009; Arballo, 2008; Bin Laden, 2002; Clark County Prosecuting Attorney, 2002; Feldman, 2002; Hasan, 2009; Hays, 1997; "Six Dead in Missouri," 2008; Stack, 2010).

It should be acknowledged that the aforementioned criteria for case inclusion may significantly affect this study's findings. Future studies of terrorism, rampage, workplace, and school attacks that did not involve suicide attempts, occurred in other countries, occurred before 1990 or after 2010, involved just one victim, or were domestic in nature could yield very different results.

Data Set Compilation

Data about the attacks and attackers were collected from previous scholarship, government reports, and media reports. These sources are commonly relied on when studying these types of incidents (Ames, 2005; Kelleher, 1997; Lieberman, 2006; O'Toole, 2000; Rugala, 2003; Thompson & Kyle, 2005; Tonso, 2009; Vossekuil et al., 2002). Previous scholars who have used media reports in their analyses of workplace, rampage, and school shooters include Fox and Levin (1994), Kelly (2010), Langman (2009a), Lankford and Hakim (2011), Larkin (2009), Newman et al. (2004), and Newman and Fox (2009).

The data set was compiled using essentially the same method employed by Newman et al. (2004) in the quantitative section of their landmark study of school shooters, Larkin (2009) in his smaller study of the same type of offenders, and the New York City Police Department (Kelly, 2010) in its recent report on active shooters.

The first step was to generate a list of all incidents and offenders that met the aforementioned criteria and could be identified from previous studies, government reports, and media reports. As such, the resulting data set was not intended to be a sample, but rather to represent the entire population of qualifying incidents. However, since it is possible that some incidents may have been missed, the data set may be skewed toward the deadliest, most newsworthy, and most significant attacks. Although this is a possible limitation, it also creates a self-prioritizing system: if this study does not indeed analyze all qualifying attacks and attackers, it still reflects those cases that previous scholars, government analysts, and media members appeared to care most about investigating and/or discussing.

The resulting data set for this study included 81 suicide attacks that occurred in the United States between 1990 and 2010: 12 terrorist strikes, 18 rampage shootings, 16 school shootings, and 35 workplace shootings. Although 81 cases may not seem like a large number, it is much larger than most studies that focus on psychological and behavioral factors. For example, past research on school shooters, which used broader criteria and did not focus exclusively on murder-suicide attacks, used sample sizes of 41 shooters (Vossekuil et al, 2002), 27 shooters (Newman et al., 2004), 23 shooters (Larkin, 2009), 17 shooters (Tonso, 2009), 14 shooters (O'Toole, 2000), 10 shooters (Langman, 2009a), 9 shooters (Newman & Fox, 2009), 5 shooters (Langman, 2009b), or even fewer in other cases.

Overall, 76 of the attacks were committed by lone offenders; 5 involved leaders and supporters or followers. To avoid skewing this study's quantitative analysis of

offenders toward the few attacks with larger numbers of support personnel, the lead perpetrators in each joint attack were analyzed, but not those who played supporting roles. Previous research on suicide pacts suggests that there are often fundamental psychological and motivational differences between the leaders and the followers in such cases (Maris et al., 2000), and the same principles may apply here. By limiting this study's analysis to the 81 offenders who were the driving force behind their respective 81 suicide attacks, it ensures that their cases get equal comparative weight. More specifically, this means that in the case of 9/11, the pilot for each plane is included, but not the "muscle hijackers" who job was simply to secure the plane so that the pilots could carry out the suicide attacks. Similarly, in the Columbine case, Eric Harris is included, but not Dylan Klebold, who recent evidence suggests may have primarily participated in the attacks due to Harris's powerful influence on him (Cullen, 2009). See Appendix A for a full list of offenders, attack designations, and attack locations.

The second step was to gather data on each incident and offender. Again, essentially the same data collection method employed here has been used previously by Kelly (2010), Larkin (2009), and Newman et al. (2004). For each case, the attack year, location, and offender's name were first searched for in previous scholarship (Ames, 2005; Bazley & Mieczkowski, 2004; Duncan, 1995; Fox & Levin, 1994; Kelleher, 1997; Langman, 2009a, 2009b; Lankford, 2011, Lankford & Hakim, 2011; Larkin, 2009; Lieberman, 2006; Newman, 2007; Newman et al., 2004; Newman & Fox, 2009; Thompson & Kyle, 2005; Tonso, 2009; Windham et al., 2005) and in government reports (Clark County Prosecuting Attorney, 2002; Kelly, 2010; Lieberman & Collins, 2011; O'Toole, 2000; Pollack et al., 2008; Rugala, 2003; Vossekuil et al., 2002). All data for the aforementioned variables that could be derived from these sources were entered into the data set. Then each attack year, location, and offender's name was searched for in the Google News Archives, which contain transcripts and/or original scans of newspaper stories for the duration of this study's time frame.

For many variables, this data collection method did not require much interpretation: attack characteristics such as dates, targets, nonperpetrator fatalities, nonperpetrator casualties, the suicide attempt of the offender, and the presence of a suicide note were usually well documented. Similarly, data on the offender's age and sex, and whether the offender struggled with social marginalization, work or school problems, family problems, or recent crises events were usually documented in government reports, scholarly studies, and/or media reports. If the presence of one of these types of personal problems was reported by the offenders themselves, family members, witnesses with close knowledge of offenders, law enforcement investigators, or previous scholars, it was included in the data set. In cases where a journalist offered his or her own analysis of the offender's motives or behavior, these opinions were almost always ignored, given the journalist's lack of firsthand knowledge of the offender and professional expertise in this area. The social marginalization variable was operationalized using the same criteria employed by Newman et al. (2004) in their authoritative investigation of school shooters. Additional information about the specific criteria for

offender characteristic classifications is presented in Appendix B, and readers are welcome to contact the author for further information.

Limitations

Of course, this data collection method comes with the same limitations and threats to validity encountered by those who have employed it before (Kelly, 2010; Larkin, 2009; Newman et al., 2004). It is certainly possible that the presence of personal problems among these offenders has been either underreported or overreported. For instance, as Newman et al. (2004) acknowledge, the absence of a personal problem being reported does not necessarily indicate that the problem did not exist. The specific behavior or experience could have been (a) genuinely absent from the offender's life, (b) present but kept secret and hidden by the offender, or (c) ignored by witnesses, law enforcement investigators, and/or media investigators who thought it unimportant or uninteresting. All three of these possibilities exist, and the latter two would lead to an underreporting of personal problems for these offenders. At the same time, witnesses, law enforcement investigators, and media investigators also have their own preconceived notions and biases that could lead to an overreporting of certain behaviors or experiences (Larkin, 2009; Newman et al., 2004). Fortunately, these limitations are at least partially offset by the fact that many offenders openly admitted their own problems in suicide notes, journals or diaries, or their comments to acquaintances, which made it easier to document the problems in their lives.

In addition, since this study is primarily a comparative analysis, its findings should not be significantly compromised as long as errors in underreporting or overreporting were consistent across the different types of offenders. For example, if family members, witnesses with close knowledge of offenders, law enforcement investigators, or previous scholars were particularly apt to misinterpret signs of social marginalization, that would not significantly compromise this study's comparative analyses unless they misinterpreted these signs more or less for one type of offender than for the others.

Findings

Naturally, there was some variation among the four types of attacks and attackers included in this data set. A series of chi-square (χ^2) and ANOVA tests were conducted to determine whether or not this variation was statistically significant. Results from those tests are listed in Table 1.

First of all, there was a significant difference in the age of offenders, $F(3, 77) = 12.22$, $p = .000$, but it was solely due to the school shooters, who were far younger ($M = 20.22$) than the other perpetrators in this study. The suicide terrorists, rampage shooters, and workplace shooters all averaged between 37.11 and 41.66 years of age. There was no significant difference in sex, $\chi^2(3, N = 81) = 1.73$, $p = .630$, $\varphi = .15$. The vast majority of perpetrators were male, and only one female workplace shooter and one female school shooter met the requisite criteria to be included in this study.

Table 1. Comparison of Different Types of Suicide Attacks and Attackers in the United States, 1990-2010

Variable	Suicide Terrorism mean (*SD*) *n* = 12	Rampage Shootings mean (*SD*) *n* = 18	School Shootings mean (*SD*) *n* = 16	Workplace Shootings mean (*SD*) *n* = 35	χ^2	*F*
Attack characteristics						
Fatalities	250.00 (528.03)	5.67 (5.54)	5.19 (7.97)	3.26 (2.61)		5.16**
Fatalities (excluding 9/11)[a]	3.25 (4.20)	5.67 (5.54)	5.19 (7.97)	3.26 (2.61)		1.23
Casualties (excluding 9/11)[a]	12.38 (13.48)	10.56 (9.18)	12.81 (15.61)	5.94 (4.26)		2.42
Fully self-controlled and self-harming suicide attempt	0.08 (0.29)	0.89 (0.32)	0.88 (0.34)	0.91 (0.28)	39.42***	
Successful suicide	0.67 (0.49)	0.89 (0.32)	0.69 (0.48)	0.91 (0.28)	6.68	
Suicide note or written explanation	0.67 (0.49)	0.56 (0.51)	0.50 (0.52)	0.11 (0.32)	18.16***	
Offender characteristics						
Age	41.42 (14.39)	37.11 (14.16)	20.22 (7.23)	41.66 (12.15)		12.22***
Sex (% male)	1.00 (0.00)	1.00 (0.00)	0.94 (0.25)	0.97 (0.17)	1.73	
Social marginalization	0.50 (0.52)	0.44 (0.51)	0.75 (0.45)	0.37 (0.49)	6.43	
Family problems	0.41 (0.52)	0.56 (0.51)	0.56 (0.51)	0.23 (0.43)	8.29*	
Work/school problems	0.75 (0.45)	0.50 (0.51)	0.88 (0.34)	0.97 (0.17)	18.23***	
Precipitating crisis event	0.58 (0.52)	0.56 (0.51)	0.63 (0.50)	0.80 (0.41)	4.33	

Note: $N = 81$.
[a]When the 9/11 attacks are excluded from suicide terrorism, $n = 8$.
*$p < .05$. **$p < .01$. ***$p < .001$.

In terms of attack characteristics, the suicide terrorism and rampage, workplace, and school shootings had a number of statistically significant differences. Due to the outlier effect of the September 11, 2001 terrorism attacks, there were significant differences in the fatalities yielded per attack, $F(3, 77) = 5.16$, $p = .004$. However, when the fatality variable was tested with the four September 11, 2001 attacks excluded, the statistically significant differences between the types of attack disappeared, $F(3, 73) = 1.23$, $p = .304$. Total fatalities with 9/11 excluded averaged between 3.25 and 5.67 for all four categories. Interestingly enough, it was the suicide terrorism attacks (excluding 9/11), that are often assumed to be most rationally plotted for maximum carnage, that were in fact the *least lethal*. Casualty data for three of the September 11, 2001 terrorism attacks are unknown, but when the relationship between casualties and attack type was tested with the 9/11 strikes excluded, there was at best a marginally significant difference between the number of casualties for suicide terrorism, rampage, workplace, and school attacks, $F(3, 73) = 2.42$, $p = .073$. This difference was attributable to workplace shootings, which averaged just 5.94 casualties, compared to the other offenses, which averaged between 10.56 and 12.81.

Other attack characteristics help explain the overall nature of the suicide attempt. The method of suicide attempt differed at a statistically significant level, $\chi^2(3, N = 81) = 39.42$, $p = .000$, $\varphi = .69$. Specifically, only 8% of the suicide terrorists' suicide attempts were fully self-controlled and self-harming: the vast majority involved other people as well (via airplane collision or "suicide by cop"). By contrast, 89% of rampage shooters, 88% of school shooters, and 91% of school shooters attempted to kill themselves by a self-controlled and self-harming method, after their attacks on others had been completed.

There was also a significant difference in attacks that involved suicide notes or written explanations, $\chi^2(3, N = 81) = 18.16$, $p = .000$, $\varphi = .47$. However, what stands out is that for this measure, the suicide terrorists, rampage shooters, and school shooters all behaved in a similar manner, writing notes or explanations in 50% to 67% of cases. It was the workplace shooters who provided the significant difference: only 11% of their attacks were preceded by a written note or explanation. In addition, there was only a marginally significant difference in whether or not the attack resulted in a successful suicide for the perpetrator, $\chi^2(3, N = 81) = 6.68$, $p = .083$, $\varphi = .29$. Workplace shootings involved the most successful suicide attempts, at a rate of 91%.

There were several other statistically significant differences that, again, were not attributable to the suicide terrorists. When it came to family problems $\chi^2(3, N = 81) = 8.29$, $p = .040$, $\varphi = .32$, there were significant differences between offenders. However, this was almost completely attributable to the workplace shooters, who were far less likely to struggle with these issues than the other types of offenders. Family problems among suicide terrorists, rampage, and school shooters averaged between 41% and 56%. In addition, the workplace and school shooters could be more closely linked to struggling with work or school problems than the other offenders, $\chi^2(3, N = 81) = 18.23$, $p = .000$, $\varphi = .47$, which in retrospect, is not particularly surprising. Finally, there was only a marginally significant difference for type of offender and social marginalization, $\chi^2(3, N = 81) = 6.43$, $p = .092$, $\varphi = .28$, and there was not a significant difference for type of offender and precipitating crisis event, $\chi^2(3, N = 81) = 4.33$, $p = .228$, $\varphi = .23$. Workplace shooters were the least likely to be socially marginalized ($M = 0.37$).

Overall, there were minimal differences between the suicide terrorists' personal problems and the problems of the other types of offenders. It was actually the workplace shooters who appeared most different from the other perpetrators of murder-suicide in this study.

Discussion

For years, the conventional wisdom has been that suicide terrorists are no more suicidal than the average soldier or terrorist who is committed to the cause and willing to risk his or her life to fight for it (Pape, 2005; Pastor, 2004, Townsend, 2007). These explanations largely reject the relevance of personal problems to the behavior of suicide terrorists, preferring to almost exclusively attribute these attacks to group psychology, organizational dynamics, and/or broader ideological movements (Pape, 2005; Post et al., 2009; Townsend, 2007; Weaver, 2006).

If the conventional wisdom about suicide terrorists was accurate, there should be very few similarities between suicide terrorists and rampage or school shooters. However, this study's findings suggest the opposite, and thus squarely support other recent scholarship that suggests that many suicide terrorists are in fact suicidal in the conventional sense (Lankford, 2010, 2011; Merari et al., 2010). Much like rampage and school shooters, the suicide terrorists in this study exhibited many common risk factors for suicide, such as social marginalization, family problems, work or school problems, and precipitating crises (see Table 1). In addition, suicide terrorists, rampage shooters, and school shooters were almost equally likely to write an explanation or suicide note prior to striking, and they were almost equally likely to end up dead as a result of their attacks.

A closer look at several specific cases from this study provides additional evidence of their underlying similarities. For instance, in 2009, George Sodini carried out a rampage shooting at a Pennsylvania gym and then shot himself in the head. That same year, Nidal Hasan carried out a suicide terrorism shooting attack at the Fort Hood Army base in Texas, which ended when he was shot and paralyzed by military police. The evidence suggests that the two men were remarkably similar. Both made preattack Internet posts that revealed that they planned to die, and both struggled with social marginalization, work problems, personal crises, perceived bullying, and failures to find a wife despite being middle-aged (Department of Defense, 2010; Hasan, 2009; Lankford & Hakim, 2011; Lieberman & Collins, 2011; "Profile: Major Nidal Hasan," 2009; Sodini, 2009). In turn, Columbine shooter Eric Harris killed himself and others with guns, but he also used homemade bombs that could have killed more than 200 students (Gibbs & Roche, 1999). And 3 years before 9/11, Harris wrote in his journal that he and Dylan Klebold would like to "hijack a hell of a lot of bombs and crash a plane into NYC with us inside" ("Columbine Killer," 2001). Of course, that sounds almost exactly like what suicide terrorists Mohamed Atta, Ziad Jarrah, Marwan al-Shehhi, and Hani Hanjour actually did. Perhaps this is at least partially attributable to underlying psychological and behavioral similarities.

Furthermore, as noted earlier, with the exception of the September 11, 2001 attacks, suicide terrorist attacks in the United States from 1990 to 2010 were *less lethal* than rampage, workplace, and school shootings involving suicide attempts, over the same period. This calls into question the conventional wisdom that suicide terrorists are sophisticated operatives who make a calculated sacrifice of their lives to maximize enemy fatalities (Carey, 2007; Pape, 2005; Post, 2009).

In addition, the similar frequency of suicide terrorism attacks and rampage and school shootings that involved suicide attempts over this 20-year span appears to be another potential indicator of their common root causes. In the United States from 1990 to 2010, there were 12 suicide terrorism attacks, 18 rampage shootings, and 16 school shootings that met the criteria for this study. If these offenders were indeed prompted to attack due to the same types of personal problems, including social marginalization, family problems, work or school problems, and personal crises, that could help explain why these attacks occurred with similar frequency.

Overall, it was the workplace shooters, not the suicide terrorists, who appeared the most different from the other types of offenders. Workplace shootings involving

suicide attempts from 1990 to 2010 were at least twice as common as rampage and school shootings, but only about half as deadly. Workplace shooters were also significantly less likely to have struggled with family problems prior to attacking others and then killing themselves. Their attacks were also more commonly linked to specific precipitating crisis events, which often involved being suspended, reprimanded, or fired by their employer. And workplace shooters were less likely to pen a suicide note or other written explanation, which may indicate a shorter period of premeditation.

A closer look suggests that workplace shooters may be the most "normal" of the four types of attackers in this study, from a cultural, motivational, and behavioral standpoint. For instance, relatively ordinary frustrated employees sometimes joke about "going postal" and ending it all. In addition, this behavior has been casually depicted as an almost natural response to work strains in numerous forms of popular culture, including television shows like *Seinfeld* and *The Simpsons*. By contrast, at least in the United States, there does not appear to be a parallel mainstream fantasy of killing strangers in a public place or students at a school, much less committing an act of terrorism.

If there is indeed a relationship between social attitudes toward workplace shootings and the rate at which they occur, this would be an extremely important thing to recognize. It would imply that less social permissiveness toward this type of murder-suicide might reduce the number of future attacks. It might also suggest the dangerous opposite. For instance, if society someday begins to consider school shootings something that normal people can relate to and casually joke about, perhaps they would also begin to occur more often. Previous scholarship on suicide terrorism has similarly indicated that social approval of that behavior in the contexts where it flourishes directly affects attack rates (Lankford, 2010; Pape, 2005). Ultimately, if social attitudes toward these crimes affect the frequency at which they occur, that suggests that people have a serious responsibility to publicly condemn them—any chance they get.

In terms of the four types of offenders, workplace shooters also appeared most likely to carry out an attack of targeted vengeance where there was an identifiable cause-and-effect. For instance, workplace shooters appeared far more likely than suicide terrorists, rampage shooters, or school shooters to kill individuals by whom they felt personally victimized. These targets were usually supervisors and bosses, although sometimes they were other hated coworkers. In most of these cases, the perpetrators ended up shooting bystanders as well. Unfortunately, these workplace shooters may have actually gained a sense of accomplishment at having righted past wrongs by carrying out their attacks. In turn, their decision to escape the legal consequences of their actions by committing suicide could be almost deemed rational.

By contrast, suicide terrorism attacks rarely accomplish the political objectives their perpetrators intended; more often, they spark a backlash (Abrahms, 2006, 2012; Laqueur, 1999). And even if they are ultimately successful in bringing about political change, suicide terrorists themselves never live to see that day. In turn, rampage shootings almost exclusively target strangers whom the perpetrator does not know and by whom they have never directly been harmed. And the same can be said of most school shootings, despite the student's general familiarity with other classmates in attendance. In fact, even when school shooters have specific enemies, they rarely seek them

out during attacks. As Newman (2007, p. 28) explains, school shooters tend to "select victims at random and seldom know whom they have killed until after the event."

Further studies should investigate these apparent differences between workplace shooters and the other types of offenders in more depth. Unfortunately, if workplace shooters are indeed more "normal" than suicide terrorists, rampage shooters, and school shooters, it may be even more difficult to identify them ahead of time. On the other hand, even when they leave innocent victims dead, workplace shooters may be a less significant threat to the social order because their attacks are less random and thus less likely to provoke mass hysteria or terror. The average civilian may be able to legitimately take comfort in the notion that he or she can significantly reduce the chance of being victimized by not making enemies at work. By contrast—because of their utter randomness—rampage shootings, school shootings, and suicide terrorist attacks all send the message that on the wrong day, anyone could be a potential target.

Conclusion

This study offers the first combined quantitative assessment of suicide terrorists and rampage, workplace, and school shooters who attempt suicide, to investigate where there are statistically significant differences and where they appear almost identical. Overall, suicide terrorists, rampage shooters, and school shooters seem to share many underlying similarities, beyond the superficial differences in their attacks. Workplace shooters appear to have the most fundamental differences with the other types of offenders.

A natural follow-up question arises: How generalizable are these findings? This study's focus was on attacks and attackers in the United States from 1990 to 2010, but it is possible that other patterns would emerge in other cultures. Fortunately, this is a testable question, and similar methodologies to those employed in this study could be used when examining these forms of murder-suicide in other contexts. The challenge would be to somehow control for a range of cross-cultural differences. For instance, government and media reports of offenders in other cultures may document fewer signs of social marginalization, but that purported difference could be based on cultural variations in how social isolation or bullying is perceived, rather than real differences in the offenders' psychology itself (Lankford & Hakim, 2011). Similar complications could arise for other variables as well.

Ultimately, these types of studies are our best hope for understanding—and preventing—acts of murder-suicide. Past research on school shootings has found that prior to these attacks, other people usually knew that the perpetrators were considering taking violent action (Newman et al., 2004; Pollack et al., 2008; Vossekuil et al., 2002). The same warning signs may be present with suicide terrorists and rampage shooters and, to a lesser extent, workplace shooters as well.

Those engaged in developing security policy, conducting threat assessments, or intervening in the lives of at-risk individuals are thus encouraged to use this study's findings about the personal problems of offenders—including social marginalization, family problems, work or school problems, and precipitating crisis events—to help guide their efforts.

For instance, counterterrorism officials who are attempting to identify future suicide terrorists before they strike should now begin to increase their precision and narrow their sights. Recent reports indicate that starting in 2007, the New York City Police Department engaged in a controversial, wide-reaching undercover surveillance program to monitor many thousands of Muslim Americans (Giambusso, 2012). However, the present study's findings suggest that rather than focusing purely on suspects who believe in a certain religion, or even a certain radical ideology, law enforcement investigators should pay closer attention to individuals who are struggling with significant personal problems. Pew Research Center surveys indicate that while there are more than 180,000 Muslim Americans who believe that suicide attacks are sometimes or often justified to defend Islamic interests, only an infinitesimal minority actively consider engaging in violence (Wike & Smith, 2009). This study's results similarly suggest that no matter what they believe in, most Americans are not a significant threat to kill themselves and others—unless many other aspects of their lives are also falling apart.

More broadly, if suicide terrorism attacks, rampage shootings, and school shootings are indeed predicated by a range of personal problems in the lives of offenders, these warning signs should increase the chances for successful prevention. It may be impossible to read the minds of future attackers to determine if they have homicidal-suicidal intent, but it seems more feasible to notice if they are struggling at work or school, fighting with family members, dealing with an unexpected crisis, or struggling with social marginalization. This latter variable could be measured in several different ways. Investigators could seek evidence on whether the individual has complained to others (or complained online through Internet posts) about being bullied, having low social status, or lacking close friends. They could even create a social isolation score, measured by tallying the approximate number of social interactions an individual has outside of the work or school context on a weekly basis. That would give investigators some quantitative basis for distinguishing individuals who are socially integrated from those who are socially marginalized.

Ultimately, since it appears that these attackers' personal problems spill over into many different parts of their lives, their employers, teachers, peers, neighbors, and family members may all have the chance to intervene in their lives and help them get the counseling or assistance they need. In cases where treatment is not a realistic option or where an attack seems imminent, community members should be encouraged to report their concerns to law enforcement officials.

In the long run, the challenge for government and law enforcement officials will be to find a healthy middle ground between intrusive hypervigilance and excessive caution. On the one hand, some false positives are inevitable, and it may seem like occasionally investigating suspects who ultimately turn out to be harmless is a small price to pay for stopping suicidal killers before they strike. On the other hand, there are moral and legal consequences to false accusations and wrongful arrests, both of which can forever stain the lives of innocent civilians. Forst (2003) suggests that sophisticated systems can be developed to manage these "errors of justice" and identify optimal strategies for all involved. Given the stakes, this should quickly become a top priority, so that the many social costs of these horrific attacks can finally be reduced.

Appendix A

Table A1. List of Different Types of Suicide Attackers in the United States, 1990-2010 (*N* = 81)

Year	Name	Type[a]	Location
1990	James E. Pough	RS	Jacksonville, FL
1991	Thomas McIlvane	WP	Royal Oak, MI
1991	Gang Lu	SS	Iowa City, IA
1991	George Jo Hennard	RS	Killeen, TX
1993	Paul Calden	WP	Tampa, FL
1993	Mir Aimal Kasi	ST	Langley, VA
1993	Gian Luigi Ferri	RS	San Francisco, CA
1993	Alan Winterbourne	RS	Oxnard, CA
1993	Larry Jasion	WP	Dearborn, MI
1994	Tuan Nguyen	WP	Santa Fe Springs, CA
1995	James Simpson	WP	Corpus Christi, TX
1995	Toby Sincino	SS	Blackville, SC
1996	Douglas Bradley	SS	Palo Alto, CA
1996	Clifton McCree	WP	Fort Lauderdale, FL
1996	Kenneth Tornes	WP	Jackson, MS
1997	Arturo R. Torres	WP	Orange, CA
1997	Anthony Deculit	WP	Milwaukee, WI
1997	Arthur Hastings Wise	WP	Aiken, SC
1997	Daniel S. Marsden	WP	Santa Fe Springs, CA
1997	Ali Hassan Abu Kamal	ST	New York, NY
1997	Michael Carneal	SS	West Paducah, KY
1997	Evan Ramsey	SS	Bethel, AK
1998	Matthew Beck	WP	Hartford, CT
1998	Joseph Neale	ST	Riverside, CA
1998	Kip Kinkel	SS	Springfield, OR
1999	Mark Barton	WP	Atlanta, GA
1999	Eric Harris	SS	Littleton, CO
1999	Thomas Solomon	SS	Conyers, GA
1999	Sergei Babarin	RS	Salt Lake City, UT
1999	Joseph Brooks, Jr.	RS	Southfield, MI
2001	Robert Wissman	WP	Goshen, IN
2001	William D. Baker	WP	Melrose Park, IL
2001	Mohamed Atta	ST	New York, NY
2001	Ziad Jarrah	ST	Washington, DC[b]
2001	Marwan al Shehhi	ST	New York, NY
2001	Hani Hanjour	ST	Washington, DC
2002	Hesham Mohamed Hadayet	ST	Los Angeles, CA
2002	Robert Flores	SS	Tucson, AZ
2003	William Lockley	WP	South Bend, IN
2003	Jonathon Russell	WP	Jefferson City, MO
2003	Ron Thomas	WP	San Antonio, TX
2003	Ricky Shadle	WP	Andover, OH

(continued)

Table A1. (continued)

Year	Name	Type[a]	Location
2003	Salvador Tapia	WP	Chicago, IL
2003	Doug Williams	WP	Meridian, MS
2004	Elijah Brown	WP	Kansas City, KS
2004	James A. Webb	WP	Seminole, FL
2004	Justin Cudar	RS	St. Petersburg, FL
2005	Myles Meyers	WP	Toledo, OH
2005	Jeff Weise	SS	Red Lake, MN
2005	Joe Cobb	WP	Glen Burnie, MD
2005	Victor M. Piazza	WP	New Windsor, NY
2006	Jennifer San Marco	WP	Santa Barbara, CA
2006	Herbert Chalmers Jr.	WP	St . Louis, MO
2006	Christopher A. Williams	SS	Essex, VT
2006	Charles Carl Roberts	RS	Nickel Mines, PA
2006	Kyle Aaron Huff	RS	Seattle, WA
2007	Jose Mendez	WP	Signall Hill, CA
2007	Asa Coon	SS	Cleveland, OH
2007	Matthew Murray	SS	Colorado Springs, CO
2007	Seung-Hui Cho	SS	Blacksburg, VA
2007	Robert Hawkins	RS	Omaha, NE
2007	Tyler Peterson	RS	Crandon, WI
2007	Jason Hamilton	RS	Moscow, ID
2007	Vincent Dortch	RS	Philadelphia, PA
2008	Wesley N. Higdon	WP	Henderson, KY
2008	Jim David Adkisson	ST	Knoxville, TN
2008	Charles Lee Thornton	ST	Kirkwood, MO
2008	Latina Williams	SS	Baton Rouge, LA
2008	Steven Phillip Kazmierczak	SS	DeKalb, IL
2008	Alburn Edward Blake	RS	West Palm Beach, FL
2009	Nidal Hasan	ST	Fort Hood, TX
2009	Odane Greg Maye	SS	Hampton, VA
2009	George Sodini	RS	Bridgeville, PA
2009	Jiverly Wong	RS	Binghamton, NY
2009	Erik Salvador Ayala	RS	Portland, OR
2009	Mario Ramirez	WP	Long Beach, CA
2010	Abdo Ibssa	RS	Knoxville, TN
2010	Akouch Kashoual	WP	Crete, NE
2010	Omar S. Thorton	WP	Hartford, CT
2010	Timothy Hendron	WP	St. Louis, MO
2010	Nathaniel Brown	WP	Columbus, OH
2010	Joseph Stack	ST	Austin, TX

[a]ST = suicide terrorist; RS = rampage shooter; SS = school shooter; WP = workplace shooter.
[b]Hijacked United Airlines Flight 93 never reached its target, crashing near Shanksville, PA.

Appendix B

Table B1. Criteria for Offender Characteristic Classifications

Classification	Criteria
Social marginalization	Statements from offenders themselves, family members, witnesses with close knowledge of offenders, law enforcement investigators, or previous scholars that offenders were loners, bullied, teased, did not have close friends, or felt socially marginalized or socially isolated.
Family problems	Statements from offenders themselves, family members, witnesses with close knowledge of offenders, law enforcement investigators, or previous scholars that offenders had bad or painful relationships with family members, had suffered or inflicted abuse within the family, were estranged from family members, or that a family member's own pain or problems had a significant negative effect on the offender's life.
Work/school problems	Statements from offenders themselves, family members, witnesses with close knowledge of offenders, law enforcement investigators, or previous scholars that offenders were struggling to succeed in work or school, were angry or upset about something at work or school, or had been suspended, fired, or otherwise disciplined at work or school.
Precipitating crisis events	Statements from offenders themselves, family members, witnesses with close knowledge of offenders, law enforcement investigators, or previous scholars that offenders had suffered the death of a loved one, broken up with a spouse or significant other, lost a large sum of money, been suspended, fired, or otherwise disciplined at work or school, or was facing serious legal problems or some other significant crisis.

Scholarly Sources: Ames, 2005; Bazley & Mieczkowski, 2004; Duncan, 1995; Fox & Levin, 1994; Kelleher, 1997; Langman, 2009a; Langman, 2009b; Lankford, 2011, Lankford & Hakim, 2011; Larkin, 2009; Lieberman, 2006; Newman, 2007; Newman et al., 2004; Newman & Fox, 2009; Thompson & Kyle, 2005; Tonso, 2009; Windham et al., 2005.
Government Sources: Clark County Prosecuting Attorney, 2002; Lieberman & Collins, 2011; Kelly, 2010; O'Toole, 2000; Pollack et al., 2008; Rugala, 2003; Vossekuil et al., 2002.
Media Sources: Hundreds of news articles were consulted for evidence about offenders. In many cases, these articles provided direct quotes from the offenders themselves, family members, witnesses with close knowledge of offenders, and law enforcement investigators. In addition, these articles helped document the occurrence of specific negative events in the offenders' lives. In cases where a journalist offered his or her own analysis of the offender's motives or behavior, these opinions were almost always ignored, given the journalist's lack of firsthand knowledge of the offender and professional expertise in this area.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was supported by The University of Alabama's Research Grants Committee.

Note

1. A brief, preliminary discussion of this research appears in the author's forthcoming book: Lankford (2013).

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Bio

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