Offender and Offense Characteristics of a Nonrandom Sample of Mass Murderers

Anthony G. Hempel, DO, MA, J. Reid Meloy, PhD, and Thomas C. Richards, PhD

A nonrandom sample ($N = 30$) of mass murderers in the United States and Canada during the past 50 years was studied. Data suggest that such individuals are single or divorced males in their fourth decade of life with various Axis I paranoid and/or depressive conditions and Axis II personality traits and disorders, usually Clusters A and B. The mass murder is precipitated by a major loss related to employment or relationship. A warrior mentality suffuses the planning and attack behavior of the subject, and greater deaths and higher casualty rates are significantly more likely if the perpetrator is psychotic at the time of the offense. Alcohol plays a very minor role. A large proportion of subjects will convey their central motivation in a psychological abstract, a phrase or sentence yelled with great emotion at the beginning of the mass murder; but in our study sample, only 20 percent directly threatened their victims before the offense. Death by suicide or at the hands of others is the usual outcome for the mass murderer.

The incidence of mass murder appears to have increased during the past half century.[1] Moreover, reports of mass murder have been documented in many areas of the world, including modern industrialized[2–4] and rural agrarian countries.[5–7] Mass murder or *amok* is believed to have had its origins in the cultural training for warfare that the early Javanese and Malays adopted from the Hindu states of India.[8] Captain Cook, for instance, described murderous attacks in Malaysia during his first voyage around the world in 1770.[6]

Although mass murder is popularly conceived of as a frequent event, it is not. If the definition put forth by Dietz[3] is used to delineate the phenomenon—"the willful injuring of five or more persons of whom three or more are killed by a single offender in a single incident" (p. 480)—then mass murder accounts for less than one percent of violent crimes in the United States. The typical homicide, by contrast, involves one young adult male killing another young male whom he previously knew.

The scientific research on mass murder

Dr. Richards is affiliated with the College of Business Administration, University of North Texas, Denton, TX and Dr. Meloy with the University of California, San Diego, La Jolla, CA. This study was supported by Forensis, Inc., with a grant from the Susan Stein Shiva Foundation. Address correspondence to: Anthony Hempel, DO, MA, P.O. Box 1303, Vernon, TX 76384.

is likewise rare. It generally consists of single[9] or multiple case studies[2,4] wherein variables are not systematically defined and measured across subjects. We have attempted to correct these deficiencies in what we believe is the first methodologically sound, descriptive study of a nonrandom sample of mass murderers in the United States and Canada.

Methods

We defined mass murder operationally using the following definition: a single adult (≥18 years) perpetrator intentionally kills at least three victims other than himself in a single incident.* We also limited our data collection to individuals who had used a firearm with or without other weapons. Individuals were excluded who only used explosive devices, arson, poison, planes, or cars. We also excluded individuals who fit other categories of homicide, such as serial, spree, felony related, gang motivated, or politically motivated. Although these exclusions limit the generalizability of our findings, they likely increase the study's specificity and sensitivity, and avoid errors made in previous publications.[10]

Multiple psychiatric, psychological, and criminological databases were searched over the past half century to identify cases that met our inclusion and exclusion criteria and also provided sufficient, credible data to complete a code book of 31 dependent variables. These data sources included scientific articles, books, videotapes, audiotapes, newspaper articles, and telephone interviews with law enforcement officers, victims, and acquaintances of the perpetrators. Each dependent variable had various coding categories, for a total field of data of 55 categories for each subject.

Results

Thirty mass murderers were identified ($N = 30$) who had committed crimes between 1949 and 1998, although the majority ($N = 21$) of the crimes occurred after 1985. All of the mass murderers in our study were male. Twenty-three were white (77%), five were black (15%), and the remaining two subjects were of Asian or other background. The subjects ranged in age from 18 to 59 years (mean = 38.3; median = 37). Ten subjects were married at the time of the mass murder (33%); the majority of the subjects were divorced or never married. Twenty-seven of the subjects (94%) would be described as "loners," a term that we used based on biographical data that stated that the perpetrator was a loner or described him as showing a marked tendency not to interact with others and to spend most of his time alone.

Nineteen subjects (63%) were unemployed at the time of the mass murder. Nine had professional occupations (30%), which we defined as employment that required a four-year college degree. Fifteen (50%) were employed in blue collar jobs—the most common being postal work—which we defined as a job requiring no college education and primarily involving physical labor. Three subjects (10%) were employed in white collar

* Three subjects within the final sample did kill in more than one location, but it appeared to be an extension of the same incident when evaluated according to homicidal plan and/or motivation.

jobs, which we defined as nonphysical labor or a desk job that did not require a college degree. Three subjects (10%) were college or high school students at the time of the mass murder.

Fourteen subjects served in the military (47%), and 19 subjects (63%) were preoccupied with weapons or war regalia. This latter variable was positive when a significant amount of the subject's time revolved around themes of war and violence: behaviors included ownership of a large number of weapons such as guns and knives; ownership of large numbers of audio, visual, and reading materials with war, terrorism, or weapons as the main theme; ownership and frequent wearing of military uniforms and combat fatigues; frequent trips to a gun range; practicing martial arts at inappropriate times and places, such as at work; prophetically violent bumper stickers such as, "You'll get my gun when you pry it from my cold, dead fingers"; excessive verbiage focusing on themes of weaponry and violence; evidence of grandiose fantasies centering on war and weaponry; infatuation with Nazi regalia; idealizing famous fictional and nonfictional violent characters; and setting up a gun range inside one's home.

Thirteen subjects (43%) had a history of violence, which meant that there was evidence of at least one violent act against a person or animal prior to the mass murder. Violent acts typically involved assault or injury to a spouse, neighbor, or strangers, and they ranged from killing a dog to killing another person.

Fifteen of the subjects (50%) had a documented psychiatric history (at least one psychiatric hospitalization or one visit with a mental health professional before the mass murder), and nine subjects (30%) had no psychiatric history. There was a questionable psychiatric history for each of the remaining six subjects (20%). The most common Axis I diagnoses were paranoid schizophrenia, delusional disorder, and major depression. Ten percent of the sample ($N = 3$) had a pre-offense diagnosis of schizophrenia.

We also assessed for psychosis at the time of the mass murder. The perpetrator, if he was judged to be psychotic, had to be clearly described as delusional, experiencing auditory or visual hallucinations, and/or not having a rational grasp of reality. Twelve perpetrators (40%) evidenced psychotic symptoms at the time of the mass murder, usually paranoid and/or persecutory delusions. An additional eight individuals (27%) exhibited behaviors suggestive of psychosis. The remaining ten subjects (33%) showed no evidence of psychotic symptoms.

Axis II personality traits and disorders were assessed by determining "enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts" (Ref. 36, p. 630). We did not make an attempt to determine when traits met the threshold for personality disorder, but we did attempt to delineate Axis II traits from behaviors caused by major mental illness. Sufficient data were available on 28 subjects' personality characteristics. Cluster A and Cluster B traits and disorders predominated. Fifteen subjects (50%) exhibited antisocial traits, 11 subjects (37%)

exhibited paranoid traits, 12 subjects (40%) exhibited narcissistic traits, 5 subjects (17%) exhibited schizoid traits, 3 subjects (10%) exhibited depressive traits, 2 subjects (7%) exhibited schizotypal traits, and 1 subject (3%) exhibited avoidant traits (note that most subjects exhibited more than one grouping of traits). The majority of the psychotic perpetrators, in our opinion, also had preexisting Axis II psychopathology.

Our threat variable was divided into four categories. A *specific* threat was made either verbally or in writing (*e.g.*, diary entry, suicide note) and clearly described the future mass murder (location, victims, or time). A *generalized* threat did not mention a specific location or victim pool. A *mixed* threat involved both a specific and a generalized threat. The final category was *no threat* (false negative). Ten subjects (33%) documented a specific threat, 7 subjects (23%) documented a generalized threat, 3 subjects (10%) documented a mixed threat, and 10 subjects (33%) documented no threats.

The verbal or written threats included 1) "I'm going hunting"; 2) "Society had their chance"; 3) a verbal statement to a treating psychiatrist that the subject was thinking about shooting people from a tower; 4) suicide notes that described the future mass murder; 5) "I'll make the massacre at Edmond look like Disneyland, a Tea Party, and a picnic"; 6) "You had better not turn your head because you'll be dead"; 7) "I've decided to stop those shrews dead in their tracks"; 8) the subject telling his brother a few days before the mass murder that he would soon make the newspaper; 9) the subject writing in a letter, "private guns make every person equal"; 10) "Feminists have always had a talent to enrage me"; 11) "They'll be sorry and everyone is going to know about it"; 12) "I'm the motivator. I'm the one that will make you do it even if I have to pull a gun out and put it to your head, speaking facetiously that is."

Only six subjects (20%) directly threatened their victims prior to the mass murder (80% false negatives). All of these subjects were nonpsychotic and knew their victims. None of the psychotic subjects directly threatened their victims prior to the mass murder (100% false negatives).

In each case, we searched for precipitants for the mass murder, defined as trigger events that occurred prior to the homicides (usually within hours or days) and were described by the perpetrator or close acquaintances as significantly mentally or emotionally disturbing to him or that were obvious from scrutiny of the perpetrator's social history. Data were available on 29 subjects. Twenty-six subjects had an identified precipitant (90%). The most common precipitating event was job related ($N = 15$; 50%) and involved termination, envy of another's promotion, confrontation by an employer, denial of a job reinstatement, bankruptcy, denial of tenure, and anger at employers for employment disability leave. The second most common precipitant was related to a spouse, girlfriend, or female acquaintance ($N = 7$; 23%) and involved actual or perceived abandonment, jealousy, erotomanic beliefs, or child support issues. Other precipitants ($N = 4$; 13%) involved school stress and anxiety, belief that a

gate was stolen, anger at boys playing in the subject's yard, and alleged incest.

The location of the mass murder, in most cases, was distant from the birthplace of the perpetrator ($N = 20$; 66%). It was most likely to be the workplace ($N = 11$; 37%), followed by a public street ($N = 6$; 20%), a school ($N = 4$; 13%), a home ($N = 4$; 13%), a restaurant ($N = 2$; 7%), a building top ($N = 2$; 7%), or a church ($N = 1$; 3%). The murders were carried out on a weekday ($N = 27$; 90%) in virtually all cases, between the hours of 6 a.m. and 6 p.m. ($N = 28$; 93%), with the majority occurring before noon. The elapsed time of the mass murders ranged from 3 minutes to 2,160 minutes (36 hours) with a median length of 20 minutes.

Alcohol was consumed by only three (10%) of the perpetrators just prior to or during the mass murder. The number of weapons brought to the mass murder ranged from 1 to 11, with a mean of 3.1. Weapons and other paraphernalia included semiautomatic pistols, semiautomatic rifles, revolvers, bolt-action rifles, hunting knives, a samurai sword, shotguns, nylon cord, shooting glasses, ear plugs, hand grenades, materials to make homemade bombs, black talon bullets, machine guns, silencers, flammable liquids, karate throwing stars, gas masks, bullet-proof vests, binoculars, machetes, charcoal lighter fluid, rope, hatchets and matches. The most frequent caliber of weapon used, when data were available, was 9 mm ($N = 13$), followed by .22 ($N = 8$) and .38 ($N = 6$). Assault rifles were used in ten of the mass murders (33%), the most common being the 7.62-mm AK 47. One subject used a .50 caliber Grizzly Big Boar single-shot rifle mounted on a bipod and scoped.[9]

We also defined and searched for a *psychological abstract*, our descriptive term for the sentence or words uttered immediately prior to, or during, the mass murder. It is our theoretical belief that the psychological abstract, usually said in a loud voice with great emotion, gives insight into the perpetrator's intent and motivation for the mass murder. Nine of the subjects (30%) produced a psychological abstract. These abstracts are listed in Table 1.

The number of victims killed ranged from 3 to 22 (mean = 8.5; median = 6.0). The number of victims wounded ranged from 0 to 30 (mean = 7.6; median = 4.0). In 15 of the incidents (50%), all of the victims were known to the perpetrators. In seven of the incidents (23%), all of the victims were strangers to the perpetrators. In six cases (20%), the victims were mostly strangers; and in two cases (7%), the victims were mostly known.

We then divided the perpetrators into known psychotic ($N = 12$) and nonpsy-

Table 1
Psychological Abstracts of Mass Murderers
($N = 30$)

1. "Here's for all the bitches at Belton!"
2. "Now you pay!"
3. "This is for the feminists!"
4. "Take that bitch!"
5. "This is war!"
6. "Happy New Year Pigs!"
7. "Bye, bye!"
8. "The people here have ruined my life!"
9. "I told them I would be back. Back off and get out of the way!"

chotic ($N = 10$) persons at the time of the mass murder to study differences, if any, between the number of victims killed or wounded and the relationship of the perpetrator to the victims killed or wounded. Total casualties for the psychotic subjects was 305 (mean (M) = 25.4), more than three times the total casualties for the nonpsychotic subjects, which was 85 (M = 8.5). The psychotic mass murderers had a significantly greater kill rate ($\chi^2 = 7.82$, $df = 3$, $p = .05$) and wound rate ($\chi^2 = 15.278$, $df = 1$, $p = .005$).

The average kill to wound ratio of the psychotic subjects was 1:1.4, and the average kill to wound ratio of the nonpsychotic subjects was 3.25:1. The psychotic subjects were less likely to kill than to wound, whereas the nonpsychotic subjects were more likely to kill than to wound. The psychotic subjects, however, averaged nearly twice as many deaths (M = 11) as the nonpsychotic subjects (M = 6.5).

The relationships of the psychotic and nonpsychotic mass murderers to their victim pools were also different. Each psychotic perpetrator had an average of 25.1 stranger casualties and 4.5 known casualties. Each nonpsychotic perpetrator had an average of 0.22 stranger casualties and 7.6 known casualties. The psychotic mass murderer was significantly more likely to kill strangers than the nonpsychotic mass murderer ($t = 3.24(8)$, $p = .0059$).

Sixteen of the subjects (53%) committed suicide after the mass murder; ten subjects (33%) were captured; three subjects (10%) were killed; and one subject (3%) attempted suicide but was captured.

Discussion

Mass murderers in the United States and Canada are likely to be males who are not disproportionately represented by any one racial or ethnic group. The gender disparity in violent behavior is well documented and is likely the result of biosocial differences, probably hormonal ones, between the sexes.[11] Although the age range of our subjects spanned 41 years, the typical mass murderer is in his fourth decade of life, placing him at least a decade older than most males who commit violent crimes. We note a striking similarity between the age range found in our study and the ages of the subjects in Felthous and Hempel's[12] review of the homicide-suicide research, further bolstered by the finding that the majority of mass murderers in our study also committed suicide. This similarity may be the result of the increasing risk of depressive and paranoid disorders, as well as the magnification of precipitants, such as job or relationship losses, as the subjects grew older.

The findings that most mass murderers are described as loners, are single or divorced at the time of the crime, and select targets distant from their places of birth suggest that these individuals are largely devoid of any affectional bonds and social supports. Their solitude, however, does not appear to be a product of shyness or introversion, but is more the result of a chronic anger and isolation, the outgrowth of life-long difficulties with interpersonal relating. For example, James Huberty, the man who murdered 21 strangers at a Mcdonalds' restaurant in

San Ysidro, CA in 1984, was described as "a peculiar, short tempered man prickly about privacy" (Ref. 4, p. 117). He was known to keep his blinds drawn, doors triple-locked, and had "no trespassing" and "beware of dog" signs all over his property.[4] Acquaintances of the subjects in our study reported feeling uneasy around them, and many subjects did not seem to miss the intimacy of friendships.

Given the Axis II findings in our sample, it is quite clear that the interpersonal histories of mass murderers suggest a paranoid-schizoid position[13] toward others and the world: a perception of others as persecutory and malevolent objects along with the absence of a desire, and perhaps a capacity, to form affectional bonds. This character style is categorically represented, in part, by the Cluster A personality disorder diagnoses of DSM-IV. Our formulation, perhaps most applicable to the psychotic mass murderer, predicts the accumulation and incubation of insults over time, magnified through the lens of hypervigilance, and washed in feelings of anger and resentment. On the other hand, the nonpsychotic mass murderer may be more inclined to the depressive position,[14] wherein reality testing is more intact, target selection is more specific, and thoughts focus on emotional helplessness and cognitive hopelessness.

Precipitants are also extraordinarily common in mass murder, most often a gross disturbance in the realm of work or love. Such precipitants, in the context of paranoia or depression, would likely increase social isolation, confirm the malevolence of others, or add to a sense of hopelessness, particularly in the fourth decade of life when career opportunities diminish, especially for the blue-collar employees who represent half our nonrandom sample.

The variables we have discussed so far—an isolative, dysphoric, and mistrustful character pathology and a major precipitating event—do not, however, account for the extreme aggression in mass murder. Other factors must be added to the mix. These factors cluster in what we would term a *warrior mentality* and are represented by the empirical findings of the Cluster B personality traits (antisocial and narcissistic), military service, a violent history, a fascination with weapons and war regalia, the absence of a direct threat, the absence of alcohol, the choice of weapons, the target selection, and the predatory nature of mass murder.

Dietz[3] first noted the association between mass murder and the warrior mentality in his cogent observation that a subgroup of individuals could be referred to as "pseudocommandos." Meloy[9] described one of our subjects: "he was dressed in a camouflage jacket, 'No Fear' brand T shirt, black ammunition vest, red or blue bandanna, sunglasses, gray sweatpants, and sneakers" (p. 327). The psychodynamic appears to be twofold: an identification with aggression and authority and an emotional fueling of grandiosity and omnipotent control, two aspects of pathological narcissism that are, for a few moments, translated into a violent reality. We would be remiss, moreover, if we did not mention a social reality in the United States that may partially account for the relative increase in mass murder during

the past 15 years—the advent of what Gibson[15] referred to as the "new warrior," the mythos of the alienated paramilitary hero in post-Vietnam era America who rages at any authority and sanctifies killing as an end in itself.

Although the military history of half of our subjects obviously does not predict mass murder, such training likely normalizes killing as a problem-solving behavior and desensitizes the subject to the act itself.[16] This habituating and skill-developing period in the mass murderer's life, when coupled with his inclination to be antisocial, narcissistic, and violent, contributes to both his future violence risk and his lethality risk. Four of our subjects were noted for their expert marksmanship in the military. Many other subjects were viewed by acquaintances as being very proficient with weapons.

The preoccupation with weapons and war regalia is another risk factor that also contributes to the warrior mentality. This preoccupation may compensate psychodynamically for a sense of impotence and failure through narcissistic fantasy, and it may behaviorally increase skill in planning and acting. One perpetrator, a mail clerk, practiced kung fu on the job, chopping his hands in the air and kicking mail bags.[4] Two of the subjects were black belts in some form of karate, and two others practiced martial arts. One postman falsely boasted of his service in Vietnam, and another spent the days preceding his schoolyard massacre in a motel room "manipulating hundreds of toy soldiers, tanks, jeeps, and weapons. . .to simulate an attack. . ." (Ref. 2, p. 213). Another subject preferred that his friends called him ".50 cal Al." The pathologically grandiose and aggressive identifications (which eventually coalesce into a belief that one is entitled to kill others) of these subjects are evident in both their fantasies and behaviors and serve to fuel narcissism and reduce paranoia, or both.[17]

The violent history of half of these men, which is probably an underestimate, should dismiss the popular notion that acts of mass murder are the result of a normal individual suddenly "snapping" under enormous stress; movies such as "Falling Down" do not serve to educate, only to morbidly entertain (although technically, Michael Douglas portrayed a spree killer). The violence of our subjects, moreover, was most apparent to wives, relatives, and co-workers, but not to casual acquaintances. Several subjects also did not hesitate to injure domesticated animals, both their own and others. Felthous and Kellert[18] noted the correlation between childhood animal abuse and protean adult violence. We would suggest that sadistic impulses be carefully assessed in the histories of mass murderers[19] if there is any evidence of preoffense cruelty.

The warrior mentality is most evident in the planning and preparation for the attack. Weapons selection varied in both quantity and quality, averaging three weapons of choice for each mass murderer—but some subjects brought an arsenal. Weapons selection appeared to be motivated by either 1) fantasy-based themes of omnipotence and grandiosity or 2) killing efficiency.

The fantasy-based themes of omnipo-

tence and grandiosity are evident in weapons that are useless for long-range killing, such as bowie knives, samarai swords, and ninja stars, but enhance the pathologically narcissistic warrior identification of the subject. Typically these weapons were not actually used and were accompanied by a congruent mode of dress, such as army fatigues, camouflage outfits, or ninja clothing. Such displays were likely planned in fantasy and rehearsed in private before the mass murder. One subject stood in front of a mirror completely outfitted with his weapons and regalia and said, "lookin' good" just before he entered the electronics firm where he killed seven and wounded three (C. Hatcher, personal communication, August 1998).

The killing efficiency of weapons choice is evident in our finding that semiautomatic firearms (both pistols and rifles) were most commonly used. Such firing mechanisms are preferred because they typically hold more ammunition and discharge more rounds per minute than revolving, single-shot, or bolt-action mechanisms. As the event approaches, subjects typically become less interested in revolvers and sports guns, preferring instead sophisticated semi-automatic weapons capable of holding and firing many bullets.[20] One subject, who killed 14 and wounded 30 strangers from the University of Texas tower in Austin, brought one shotgun, three high powered rifles, three pistols, 700 rounds of ammunition, one machete, one bayonet, and three knives. Another subject planned his weapons escalation—beginning with a revolver, moving to a semiautomatic pistol, and finishing with assault rifles—to match the firepower he would encounter when he killed his wife first and police officers second.[9] Another practiced on video with his TEC 9 semiautomatic 9-mm pistol in the desert weeks before committing mass murder. In our nonrandom sample, most subjects, through their weapons selection and practice, evidenced a plan to maximize their casualty rate. Subjects who brought four or more weapons took a median of 240 minutes, while subjects who brought one or two weapons took a median of 12 minutes to complete their mass murders. We note parenthetically that three of the subjects experienced misfires during the mass murders, a likely result of overheating, other improper use, or cheap equipment.

The warrior mentality is also evident in the surprise attack of most mass murderers. Despite a majority of the subjects articulating a specific or generalized threat, only one of five (20%) directly communicated a threat to the target(s). This finding parallels the behavior of assassins and attackers of public figures who communicate their threat directly to the target and law enforcement about ten percent of the time.[21]

In stark contrast to most homicides,[22] mass murder does not appear to involve the use of alcohol. Only three subjects consumed alcohol immediately prior to or during the offense. The biological link between alcohol and *affective* violence, the common mode of violence in our species, appears to be depleted levels of circulating serotonin.[23] Mass murder, however, is usually a *predatory* mode of violence—planned, purposeful, emotion-

less, with minimal autonomic arousal—and alcohol is generally not used to disinhibit impulse.[9] In fact, alcohol could reduce casualty rates by affecting judgment and neuromuscular coordination, a state of mind that is anathema to the warrior mentality.

The warrior mentality of the mass murderer is finally evident in his target selection and timing. Seventy percent of the mass murders occurred in the workplace, a public street, or a school, usually during a weekday morning. Ease of visual sighting and sheer numbers of available victims would be enhanced by committing mass murder in public locations when the most people were likely to be there. If a desire to kill can be measured by quantity of dead victims, these subjects were extraordinarily eager and successful: they averaged 8.5 kills per offense.

The motivation and psychopathology of mass murder varies from subject to subject and likely involves both Axis I and Axis II diagnoses. Extreme anger appears to be the central emotion fueling these events, and it is often caused by the perception that others are persecuting or treating one unfairly. Often paranoid ideation and/or depressed mood complicate and intensify the chronic, brooding anger of the perpetrators, while their antisocial and narcissistic traits provide a sense of callousness and entitlement that allows them to act it out.

Depression in its various permutations was also evident in our findings that the majority of subjects committed suicide, the absence of clandestine activity once the mass murder began, the relatively older age of the subject compared with other homicide perpetrators, the psychiatric history of half of the subjects, significant losses as precipitating events, and the suicidal intent of many subjects even if they did not die. One man wrote in a note before his mass murder, "at this time though the prominent reason in my mind is that I truly do not consider this world worth living in and I am prepared to die" (Ref. 4, p. 52).

Paranoid ideation was also ubiquitous, and Axis I diagnoses, when available, included paranoid schizophrenia and delusional disorder. When the subjects were psychotic, as 40 percent were at the time of the killings, persecutory delusions were commonly documented. Paranoid ideation, ranging from fixed ideas to systematic delusions, is found in a significant proportion of mass murderers for several reasons. First, the paranoid dynamic, an irrational fear of imminent assault, facilitates a reason, albeit a psychotic one, for the mass murder: a preemptive strike. Second, we have noted that paranoid individuals will magnify and incubate insults in their minds for many years, a narcissistically sensitive cognitive style that generates chronic anger and resentment. With the right precipitant, these cumulative insults may be condensed into one act, a mass murder, which in the mind of the paranoid is completely justified. Third, our term "psychological abstract" (see Table 1) captures much of the projection of the mass murderer. Others are to blame for his failure and misfortune. In fact, he is entitled to kill others because they are responsible. And fourth, recent research focusing on threat/control override[24] has identified

three aspects of delusions—thought insertion, persecutory beliefs, and domination by others—that predict violence among those who are delusional. Such thoughts were often noted among the psychotic portion of our sample.

To further investigate the psychopathology of the mass murderer, we divided our sample into psychotic and nonpsychotic subgroups. Surprisingly, there were significant differences in casualty rates, kill to wound ratios, and the murderers' relationships to their victims, as we have documented. Why are psychotic mass murderers likely to kill more individuals, and injure more, than the nonpsychotic mass murderers? And why are the psychotic mass murderer's victims usually strangers?

If we assume that the psychotic mass murderer is typically paranoid and the nonpsychotic mass murderer is typically depressed, our findings empirically confirm the earlier observation of Dietz[3] that paranoid perpetrators kill more people than depressed perpetrators. Only 16 percent of the known psychotic perpetrators killed at a job site, whereas 40 percent of the nonpsychotic perpetrators killed at their job site. The psychotic subject is also more likely to appear as a "pseudocommando"[3]—his victim pool, strangers all, is targeted in a public place or from an elevated site and in actuality is defined only by *proximity* to him. He has no actual relationship to them. In his mind, however, victims are either indiscriminately targeted (therefore accounting for his significantly higher casualty rate) or represent a predesignated group, even if nameless to him, that form a paranoid pseudocommunity.[12, 25, 26] Two of our psychotic subjects indiscriminately targeted individuals in proximity to the University of Texas tower in Austin and the MacDonald's restaurant in San Ysidro, California. Neither one had a predetermined group they wanted to kill.

On the other hand, those who comprise the pseudocommunity share a common characteristic—race, sex, religion, job, even hair color—that the perpetrator both hates and is threatened by, what we would analytically refer to as a projective identification.[27] The objects of hatred of our subjects ranged from blonde females, feminists, and the black and white races to attorneys. The latter subject typed in a note, which he carried with him to the mass murder, "Esquires from the dark ages roamed the countryside to steal from the working people and give to the prince. Do attorneys want us to call them esquires because their allegiance is to the monarchy?"

The nonpsychotic mass murderer, however, is more efficient in his attack. Because he has usually had a previous relationship with his victims he knows their behavioral and thought patterns and also the geography of his murders. His target selection is relationally based and more selective, and therefore he both kills and wounds fewer victims than the psychotic perpetrator. Both the psychotic and the nonpsychotic mass murderer, however, are engaging in predatory violence, even though the reason for the predation may be delusional for the former.[28]

Although most authorities describe the precipitant of mass murder as an untoward event, there is some evidence that it

may be, on occasion, an organic condition. Hall[29] reported significantly elevated levels of cadmium and lead in one of our subjects, suggesting toxicity at the time of the mass murder. One other subject also had unusually high levels of both substances. Lead poisoning can cause a variety of neuropsychiatric symptoms, including severe mood disorders with apathy, irritability, and diminished control of anger.[30] Cadmium is also a neurotoxin that can alter behavior.[29] Heavy metal poisoning has also been implicated in combined homicide/suicides.[31] One of our subjects requested an autopsy of his brain in a note just prior to his mass murder. A 2 × 1.5 × 1-cm tumor was found subsequently above the red nucleus in the white matter just below the gray center thalamus of his brain upon autopsy.[32] Another subject suddenly became paranoid and moody at the age of 52, a drastic personality change in the sixth decade of life, which is often pathognomonic of organic illness.[33] Such anecdotal evidence suggests that neurotoxicity and other forms of organic disease should be considered as a possible Axis III condition in the evaluation of an individual who commits such a low frequency and high intensity offense.

Raine[34–35] has also begun to document functional anomalies in the prefrontal cortex of murderers, specifically orbitofrontal deficits in psychopathic subjects and dorsolateral deficits in subjects exhibiting schizoid and schizotypal personality traits. We would note the striking parallels between his work and our Axis II findings of both Cluster A and Cluster B traits among these mass murderers, perhaps suggesting a biological substrate for the "schizopathic" subjects within our sample.

Summary and Limitations

A nonrandom sample of mass murderers in the United States and Canada during the last 50 years suggests that such individuals are single or divorced males in their fourth decade of life with various Axis I paranoid and/or depressive conditions and Axis II personality traits or disorders, usually Clusters A and B. The mass murder is precipitated by a major loss related to employment or a relationship. A warrior mentality suffuses the planning and attack behavior of the subject, and a greater number of deaths and higher casualty rates are likely if the perpetrator is psychotic at the time of the offense. Alcohol plays an insignificant role. A large proportion of subjects will convey their central motivation in a psychological abstract, a phrase or sentence yelled with great emotion at the beginning of the mass murder.

We would like to caution, moreover, that our findings are only descriptive, and due to the nonrandom nature of our small sample, may not generalize to other mass murderers. We note, in particular, that the offender characteristics of our sample should not be used as predictive factors for mass murder for a number of reasons, including the absence of a comparison group and the retrospective nature of our data. We hope that this study will have heuristic value and may stimulate further systematic research, but we also recognize that mass murder, given its very low frequency, motivational complexity, and

diagnostic comorbidity, will never be completely prevented. Sensitivity to these troubled and dangerous individuals, however, may improve risk management and the accuracy of threat assessment, as long as we keep in mind that most subjects ultimately will be false positives.

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