

The Development of Rampage Shooters

Myths and Uncertainty in the Search for Causes

Benjamin Winegard and Christopher J. Ferguson

In the days leading up to the shooting, the 14-year-old female shooter told half a dozen peers that she planned to “get” her former boyfriend and his friend at Spanaway Junior High School (McCarthy, 1985). On the fateful day, she retrieved a .22 caliber semiautomatic rifle from her parent’s home and brought it to school underneath a blanket. She confronted the two boys outside of the gym – both were members of the wrestling team. One of the boys stepped in front of the other to prevent her from shooting, but she shot both from close range and they succumbed to their wounds. The girl fled and roamed the community for nearly two hours before returning to the school where she killed herself. It was November 26, 1985 (Brown & Balter, 1985).

This girl was not a known disciplinary problem, described rather as quiet, friendly, and something of a practical joker. She was also a perfectionist who obsessed over grades and school activities (McCarthy, 1985). In the lead-up to the shooting, her grades slipped, she lost the race for vice president of the student body, and her “boyfriend” seemed uninterested in having a serious relationship – even though the “breakup” took place 6 weeks before the shooting. This lonely 14-year-old girl, desperate, slit her wrists, either in a suicide attempt, a cry for help, or both. She also visited the school counselors where she discussed her feelings of insecurity (Brooks, 1985).

This case, like many tragic cases of mass shootings, is perplexing, poignant, and disturbing. This 14-year-old girl seems similar in every way to many thousands of teenaged girls who suffer similar insecurities, breakups, and suicidal thoughts. What made her different?

Given the ubiquity of today’s media and a few recent high-profile mass shootings, it is not surprising that the study of such shootings is surging in psychology, sociology, education, and related disciplines. Nor is it surprising

that mass shooting coverage in the media has exploded with Twitter and other social media platforms providing “live coverage” of such shootings when they occur. One potentially important area of study is the developmental trajectory of mass shooters. Are there reliable developmental factors that allow us to predict who will become a mass shooter and who will simply suffer their mental duress and trauma without causing others harm?

Overall, this chapter will demonstrate that there are no reliable predictors. Mass shootings are such astonishingly rare, idiosyncratic, and multicausal events that it is impossible to explain why one individual decides to shoot his or her classmates, coworkers, or strangers and another does not. The most that can be offered are some vague generalizations: Shooters tend to be male; to suffer from mental illness; to have experienced recent social loss (romantic relationship or otherwise); to be sensitive to perceived slights and injustices; and many were influenced explicitly by previous shootings (Cullen, 2013; Larkin, 2009, 2013). While this might seem unduly pessimistic, we note on the positive side that there are some promising typologies of school and mass shooters that seem worth exploring and expanding upon. And, more importantly, many of the factors, such as violent media and video games, that are popularly assumed to lead to school shootings probably do not.

In this chapter, we first summarize previous research on the developmental antecedents and psychological traits of mass shooters. We next present a tentative model of violence and utilize it as a tool to account for the complex causal network that leads to mass shootings. Finally, we document some popular causal explanations of the development of mass shooters and detail that these should be treated with skepticism. Indeed, if our only contribution in this chapter is to convince the reader that we do not currently, and may not ever, possess the knowledge to make explicable the introductory case, this chapter will have served a useful purpose.

Previous Research on Mass Shooters

Conclusive evidence on mass shooting perpetrators is understandably difficult to come by. First, such shootings are rare, resulting in a very small initial population of perpetrators. Second, most mass shooters die during their crimes, either killed by law enforcement or suicide. Third, those perpetrators who do survive are scattered across multiple state or federal prisons, or forensic hospitals, with minimal access to outside scholars. Thus, psychological research on perpetrators often relies on “psychological autopsies” based on police reports and accounts of witnesses or surviving family members.

The most comprehensive early report on mass shootings was conducted in 2002, and focused specifically on shootings occurring at schools. Conducted by the United States Secret Service and Department of Education (Vossekuil, Fein,

Reddy, Borum, & Modzeleski, 2002), this report compiled several dozen psychological autopsies of past school shooters going back decades, including interviews with some who were still alive. Perhaps most striking in the results of this report was that no true “profile” of perpetrators emerged. Some common assumptions, such as the perpetrators came from broken homes, were heavy consumers of violent media, or were victims of extreme bullying, were not supported by the available evidence. Perpetrators did tend to view themselves as victims of perceived injustices (real or imagined), often had long-standing issues with anger, rage or resentment, and tended to display evidence of chronic mental health issues, although these often went unidentified or untreated prior to the shootings. The best preventative indication of mass shootings was not the development of a “profile” that could be used to screen and identify individuals far in advance of a shooting, but rather taking seriously and reporting to authorities vocalized threats by potential shooters.

Several other scholars have conducted post-hoc analyses of shooting events. Lankford’s (2013) analysis compared U.S. shooters to suicide terrorists and concluded that there were more similarities than differences between these groups. Fox and DeLateur (2014) also recently reviewed the literature on mass shootings and identified several myths that commonly develop about these events. These myths included false beliefs that mass shooting incidents are more common now than in the past, perpetrators “snap” suddenly when they commit their crimes, and exposure to violent media plays a causal role in such shootings.

Langman (2009) examined the case histories of 10 school shooters and concluded that they fit into three general categories. Traumatized shooters tended to come from difficult family backgrounds where they were subjected to intense abuse. Psychotic shooters had long-term difficulties with paranoia and psychosis-based disorders, such as schizophrenia or schizotypal personality disorder. Lastly, psychopathic shooters, like psychotic shooters, came from intact homes without abuse but displayed a profound lack of empathy. Langman (2013) has more recently updated his database to include 35 shooters and found that the threefold typology is applicable to the newly added cases. While Langman’s approach is a valuable discussion point, we note that, like all approaches, it has several limitations. First, it is built upon only a small number of cases ($n = 35$). Second, as Langman noted, most individuals who have experienced any of the core features of the three categories (i.e., abuse, psychosis, or psychopathy) do not commit mass shootings. Lastly, categorical systems may focus on differences between shooters, rather than similarities.

One caution regarding mass shooting events is that these incidents are nationally traumatic and extremely high profile, which can lead to pseudoscientific public statements that support specific political agendas. Typically this takes the form of politicians demanding “studies” (often by national scientific bodies where they control the funding appropriations) while making clear, in advance, what results they wish the “study” in question to yield.

One remarkable example occurred after the 2012 Sandy Hook shooting in which a 20-year-old male killed 20 children and 6 adult faculty and staff at an elementary school in Connecticut. Because of the shooter's age, it was speculated that he might have been a frequent player of violent video games (e.g., KCCI, 2012). However, the official investigation report ultimately concluded that he was fonder of nonviolent games, such as *Dance, Dance Revolution*, than violent games (State's Attorney for the Judicial District of Danbury, 2013).

The shooting resulted in several calls for "research" into the alleged link between violent video games and gun violence, with the politicians who were calling for such research making it clear they intended to use it to attack the video game industry. Most of these efforts ultimately failed. However, one congressman, Frank Wolf, managed to persuade the National Science Foundation (NSF) to produce a dubious report on youth violence. Wolf was a very powerful member of Congress who chaired, among other things, the committee that oversaw funding for the NSF. Following the Sandy Hook shooting, Wolf asked the NSF to produce a report on youth violence. The NSF agreed and included as authors in that report two media scholars with a history of promoting exaggerated views linking media to extreme behavioral change. No scholars skeptical of media effects were invited to participate to balance out the report (Ferguson, 2014).

The NSF report eagerly linked video games and other violent media to mass shootings. To do so, the report selectively referenced mass shootings where perpetrators had played video games but ignored those that did not. The report also selectively reported research linking video games to aggression, while failing to report a single study, despite the existence of many, suggesting that violent video games or other media may not be linked to violence (Subcommittee on Youth Violence, 2013). The only exception was a 2008 meta-analysis by criminologist Joanne Savage that the NSF authors falsely claim linked violent media to violent crime even though Dr. Savage came to the opposite conclusion (Savage & Yancey, 2008). The report failed to mention that many mass shooters, young and old, did not consume violent video games or other violent media, nor did they mention any of the many studies that have contradicted their conclusions (Vossekuil et al., 2002). This example highlights the hazards of mixing politics, moral panics, the need for certainty, and science.

Difficulties in Identifying a Developmental Pathway

It appears that mass shooters tend to reach a remarkably consistent endpoint, marked by the combination of mental illness, psychopathic traits, severe depression, and resentment toward perceived injustices (Ferguson, Coulson, & Barnett, 2011). This endpoint appears to be reasonably similar

to suicide terrorists (Lankford, 2013). However, the developmental path to this endpoint remains, largely, mysterious.

This is, in part, because violent behavior is partly innate, and even adaptive under some extreme circumstances, but can be brought forth in maladaptive ways through genetic predispositions coupled with a nearly infinite array of environmental stressors. How these stressors impact individuals is idiosyncratic. For much of the twentieth century, it was thought that violence was a purely learned behavior, and this view continues to cause much confusion in discussions of mass shootings. We do not mean to suggest that learning is irrelevant to violence, rather that simplistic imitative learning is unlikely to be the core feature of violence. Rather, violence is a complex process arising from genetic predispositions, immediate family and peer influences, mental resiliency, and environmental stressors. Diathesis-stress models of violence, such as the catalyst model (Ferguson et al., 2008), suggest that both genetic predispositions and harsh early environment most likely contribute to the development of personalities which are more prone to aggression and violence than others. Indeed, this basic observation has been well-supported in previous literature (e.g., Caspi et al., 2002).

Development of this aggressive personality results in an array of potential responses to external stimuli. Aggressive personalities are more likely to lean toward aggressive responses, but these can still be restrained by the brain's impulse control device, the prefrontal cortex, which is involved in foreseeing consequences and restraining maladaptive impulses. This impulse control device can, in turn, break down under some circumstances, including brain injury, but may also function less efficiently when more external stress is applied to the individual.

This model explicitly indicates that forces that have direct impact on the developing child are far more likely to be influential than peripheral forces (Figure 4.1). This comes most into play when assessing potential factors, such as media violence, which have little direct impact on a developing child's world

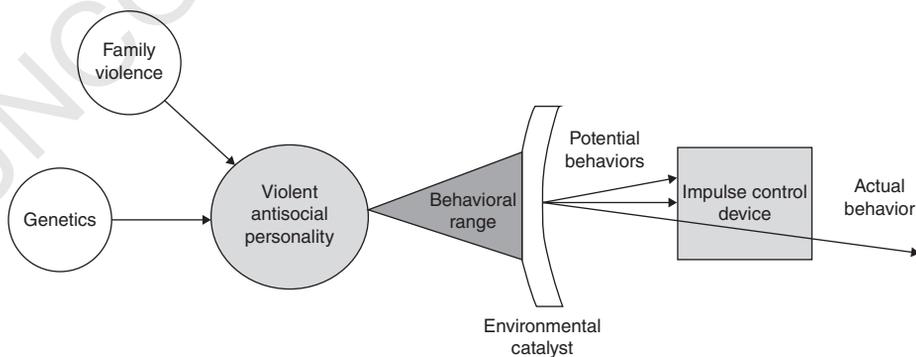


Figure 4.1 A catalyst model for violent antisocial behavior.

and, thus, are too distal to influence the developmental path to violence. That is to say, the developing child's mind treats real stimuli differently from that in a fictional universe.

This model tends to work well in understanding the developmental pathways toward most violent crimes, which are often linked to stress, abuse and neglect, depression, peer delinquency, and brain damage to the frontal lobes. However, with mass shootings, although some elements, such as stress and antisocial personality are present, there is less of a clear link to family abuse or neglect. Regardless, the presence of "grievance collecting" elements in most shooters may provide a key. Mass shooters typically view themselves as victimized to a greater extent and react disproportionately to such perceived grievances (Knoll, 2010b). It may be that mass shooters lack resiliency to perceived slights, neglect, or bullying that would have far less impact on developmentally typical individuals. The resultant lack of hope and feeling of social isolation thus become the element of abuse or neglect, which is a key feature of the catalyst model.

This process is consistent with those described in the most detailed case studies of shooters, and with broader research that suggests shooters delight in the fantasy of taking vengeance and in teaching their victims a lesson (Klein, 2005; Knoll, 2010a). In one case, a 30-year-old woman with a history of debilitating mental illness nursed grievances against nearly everyone she came into contact with, especially her ex-husband (Browner, 1988). Eventually, her desire to get even with her ex-husband and others who had wronged her led to a convoluted and almost nonsensical plan of revenge. In the course of her ill-conceived plan, this woman ended up shooting and killing a random 8-year-old boy and seriously wounding five others at a school in Winnetka, Illinois (Kaplan, Papajohn, & Zorn, 1990).

Purported Causal Factors That Are Not Supported

Violent video games and media

According to a 2013 Harris poll immediately after the Sandy Hook shooting (Harris Polls, 2013), 58% of Americans believed that the portrayal of violence in video games was related to violence in society. Polling Americans a few months later, Przybylski (2014) found an even split in opinions on video game influences. However, both polls also documented clear generational influences, with older adults and those unfamiliar with video games being far more likely to endorse causal effects. This causal effects view has been shared by some TV personalities and pundits, such as Dr. Phil McGraw (2007), who stated that "common sense" tells anyone that video games mixed with mental illness and rage lead to an explosive cocktail, as the "suggestibility is too high."

Interestingly, the National Rifle Association executive vice president, Wayne LaPierre, also agreed with this sentiment, when after the Sandy Hook shooting he asserted that violent video games were part of a “callous, corrupt, and corrupting shadow” industry that sows violence “against its own people” (Oremus, 2012). Perhaps more surprisingly, some scholars have echoed these alarmist pronouncements, comparing the relation of media violence and real-life aggression to the link between smoking and lung cancer (Strasburger & Grossman, 2001; Strasburger, 2007; Strasburger, Jordan, & Donnerstein, 2010). Other scholars have implicated violent video games as a contributing factor in mass shootings (Anderson & Dill, 2000).

Despite such assertions, there is no evidence to support the claim that violent video games are causally related to serious aggression, such as mass homicides and school shootings (Ferguson, 2008). In fact, there is minimal evidence that violent video games increase low-level aggression within the laboratory (Ferguson, 2007; Hall, Day, & Hall, 2011).

Several meta-analyses have been conducted on potential video game influences on milder aggression, relying particularly on studies involving WEIRD (i.e., Western, Educated, Industrialized, Rich, and Democratic) participants (Henrich, Heine, & Norenzayan, 2010). These meta-analyses have come to conflicting conclusions about potential effects. Two meta-analyses (Anderson et al., 2010; Greitemeyer & Mügge, 2014) came to the conclusion that violent games can have small but significant influences on mild aggression. However, both of these meta-analyses have been identified as problematic. Anderson et al. (2010) excluded numerous null studies from their analyses, resulting in spuriously high effects. Publication bias was also evident, but unreported, particularly in the “best practice” experimental studies (the majority of which were the authors’ own studies), where effect size and sample size correlated $r = -.503$ ($p = .007$), which is a potential indication of p -hacking and avoidance of null results. Greitemeyer and Mügge (2014) appear to have numerous fundamental problems with their meta-analysis, including the inclusion of studies with no violent/nonviolent control group, the inclusion of studies multiple times in a single analysis, the violation of homogeneity assumptions, and sloppy extraction of effect sizes. The authors also suggested that “neutral” studies agreed with causationists more than skeptics, but achieved this result by including numerous studies by causationists (including coauthors on Anderson et al., 2010) as if they were “neutral.”

Two other meta-analyses were more skeptical of video game influences. Sherry (2007) concluded that the weak effects seen were likely due to methodological shortcomings of the studies, which have been widespread. Sherry (2007) also noted that evidence that video games have more influence than other media due to their interactive nature was absent. Ferguson (in press), which focused on samples of children and adolescents, found little evidence of harmful effects for video games on aggression or mental health issues. Further,

studies in the Ferguson (in press) meta-analysis that employed citation bias (only citing research that supported the author's own views) were more likely to find effects than those that did not.

Other scholars have noted that correlational relationships are not observed between violent game consumption and violent crime or bullying over time in the United States, nor between game consumption and crime cross-nationally (Markey, Markey, & French, in press). Markey et al. (in press) also observed that releases of popular violent video games, such as the Grand Theft Auto series, is followed by immediate declines in violence, suggesting a causal effect related to declined societal violence. The authors explain this as a function of routine activities theory in which popular video games occupy the time of young males who might otherwise have engaged in violence.

However, such data are correlational and we do not intend to assert a causal link. Although correlation does not equal causation, absence of correlation is good evidence for absence of causation. Causal advocates often defend against this inconvenient data by noting that violence is multidetermined. We certainly agree that violence is multidetermined, but this counter explanation fails for three reasons. First, noting that violence is multidetermined does not mean video games need be one of those causes. Second, causationists often argue, on one hand, for violent games having dramatic impact on a par with smoking and lung cancer, causing up to 30% of societal violence (e.g., Strasburger, 2007), or being akin to global warming or Holocaust denial (e.g., Strasburger, Donnerstein, & Bushman, 2014). Yet when faced with inconvenient correlational data, whether from individual studies or from real-world data (e.g., Breuer Vogelgesang, Quandt, & Festl, in press; von Salisch, Vogelgesang, Kristen, & Oppl, 2011), such data are dismissed. Comparisons to smoking/lung cancer and global warming also are problematic, since the correlational data in those cases clearly are in the direction expected by causationist arguments (lung cancer increases in smokers; global warming has increased along with pollutant emissions.)

A third problem with the dismissal of societal crime data is that many scholars who dismiss current crime data either used them when crime rates were rising in the 1980s, or eagerly sift about for crime data that appear to support causal beliefs. One recent curious argument suggests well-established crime data should be ignored in favor of teen gun injury data from the Centers for Disease Control (Bushman, Romer, & Jamieson, 2015). They suggest that gun injuries among teens can be used to infer gun violence rates by teens. However, the CDC data appear to be unreliable, with wild fluctuations from one year to the next. Further, why infer teen gun violence rates from CDC injury data, when teen gun violence data from the Bureau of Justice Statistics (2013) already document a declining trend?

When it comes to mass shootings, belief in a link between these events and video games is a clear product of confirmation bias. When shooters are older

males (or more rarely, females), little attention is paid to video games. That is to say, few pundits or scholars take the time to point out that these older shooters did not play violent video games. Yet, video games are eagerly raised as an issue for young male shooters. This confirmation bias appears to intuitively capitalize on base rate behaviors. Because violent game play is ubiquitous among young males in the population, yet rare for older males, it is not surprising that young male shooters often played violent games. However, some cases of young male shooters, such as Sandy Hook or Virginia Tech, were found in official investigation reports to have little relation to violent games. Yet these exonerations often receive far less media attention than the initial speculation about video game influences.

Bad homes

Home life is the risk factor that laypeople blame most for mass shootings. In a 2001 Gallup poll (Moore, 2001), 92% of respondents asserted that home life, including relationship with parents, was “very/extremely” important in causing school shootings. Scholarly research on mass shooters has demonstrated that family-level variables, such as a lack of supervision, troubled relationships, and sexual/physical abuse, are significant risk factors that present themselves in mass shooters (Verlinden, Hersen, & Thomas, 2000; Langman, 2009). However, the Secret Service Report on school shootings (Vossekuil et al., 2002) noted that a majority of shooters (63%) came from two-parent families and case study research reveals that many shooters come from typical households (Cullen, 2009; Gibson, 1999; Langman, 2009, 2013). For example, the home life of the Sandy Hook shooter, while not idyllic, was far from abusive. The Sandy Hook shooter’s mother was doting and his socioeconomic status was above average (Griffin & Kovner, 2013a). Many of the issues that the family encountered were due to the shooter’s mental illness which placed strain on his mother (Griffin & Kovner, 2013b). The duress in the household appears to have been caused by the shooter rather than the parents, which is perhaps not uncommon, especially among adolescent shooters.

As the Sandy Hook case illustrates, assessing the impact of home life on the developmental trajectory of shooters is extremely difficult. The Red Lake shooter, for another example, suffered a traumatic childhood which included his father committing suicide after a standoff with the police and his mother suffering permanent brain damage from a car accident. It is tempting to grant causality to such traumatic events and to “explain” the shooter’s behavior by reference to his or her upbringing. But this simply invites the question of why hundreds of thousands of children who suffer similar or worse trauma do not commit heinous crimes as adolescents or adults (Widom, 1989). More disconcerting, many studies that assess the impact of home environment on subsequent outcomes (behavioral or mental) are not genetically informed and therefore are

incapable of demonstrating causality (Harris, 2007). When genetically informed studies are conducted, the family environment (or “shared environment” in behavioral genetic parlance) usually accounts for minimal variation in outcomes (Bouchard, 2004; Boutwell & Beaver, 2010; Wright, Beaver, Delisi, & Vaughn, 2008).

As we have illustrated above, the thread that seems to unite mass shooters is mental illness and perceived grievances. There is now a voluminous literature on the genetics of the mental pathologies that have been identified as prevalent in shooters (e.g., psychopathy, borderline personality, schizophrenia, bipolar, depression) and all of these disorders have a strong heritable component with little impact of shared environment (e.g., Bornovalova et al., 2013; Distel et al., 2008; Frick, Ray, Thornton, & Kahn, 2014; Larsson, Andershed, & Lichtenstein, 2006; Lichtenstein et al., 2009; Viding, Jones, Paul, Moffitt, & Plomin, 2008).

Although these results do not disprove the hypothesis that the home environment is an important causal factor in the genesis of mass shooters, they do suggest that skepticism is appropriate. It is worth noting that gene x environment interactions (GxE) may be one way in which the home environment exerts an influence on individuals who are particularly vulnerable to specific environmental stimuli (Kim-Cohen et al., 2006; see Figure 4.1). From this perspective, some individuals may be more vulnerable than others to traumatic events that occur in the household. Out of this subset, a very few are traumatized to the point where, in conjunction with other factors, they commit serious acts of violence (Caspi et al., 2002). This seems to be a plausible hypothesis and one worth exploring in greater detail. Currently, attempts to replicate GxE interaction studies have had limited success and GxE studies suffer from confounds that limit the conclusions one can draw from them (Duncan & Keller, 2011; Keller, 2014). However, there is little evidence that the home environment is a crucial causal factor and there is much evidence that it is irrelevant in the majority of mass shootings (Langman, 2013).

Bullying

Of all the purported factors that have been proffered to explain mass shootings, especially at schools, bullying is the one that probably resonates as the most plausible and understandable to laypeople. According to the above mentioned Gallup poll (Moore, 2001), 62% of respondents thought bullying and teasing were “very/extremely” important as causal factors in school shootings. Most individuals can think of a time in their lives when they were bullied, teased, or harassed, and many have the memories of such incidents seared into their brains. Thus, it is not surprising that bullying is believed by many scholars and laypeople to be a major contributing factor in shootings. This belief is seemingly well grounded by careful case study research that has demonstrated that

the majority of school shooters were the victims of malicious bullying and teasing, especially pertaining to their sexuality and perceived lack of masculine traits (Kimmel & Mahler, 2003; Klein, 2012; Leary, Kowalski, Smith, & Phillips, 2003). Nevertheless, many shooters were not bullied and/or were themselves bullies (Langman, 2009; Meloy, Hempel, Mohandic, Shiva, & Gray, 2001). The 2013 Arapahoe High School shooter, for example, blamed teasing that occurred in elementary school for his subsequent psychological and anger issues, but was seen by others as a mercurial and difficult bully who was exceedingly arrogant (McCauley, 2014). Similarly, Cullen (2009) does not view the evidence as supporting that the Columbine shooters were bullied to any significant degree. Rather, Cullen views one of the shooters as a psychopath and the other as a seriously depressed individual seeking love, connection, and meaning.

Overall, researchers have found that bullying (defined as repetition, rejection, and unequal power) is surprisingly common, with some estimates that over 50% of students (ages 12–15 years) have been verbally bullied at least once in the past 2 months and 85–95% of LGBT and students with disabilities have experienced bullying (Swearer, Espelage, Vaillancourt, & Hymel, 2010; Wang, Iannotti, & Nansel, 2009). Other research estimates that bullying is less frequent, but still common, with estimates between 11 and 20% (Olweus, 2012; Salmivalli, 2010). There is strong evidence that both bullying and being a victim of bullying can lead to psychological and somatic distress including depression, self-harm, and, in extreme cases, suicidal ideation, and possibly suicide (Fekkes, Pijpers, & Verloove-Vanhorick, 2004; Hinduja & Patchin, 2010; Lereya et al., 2013). There is also an association between being a bully and antisocial outcomes later in life, but some controversy about whether being a victim of bullying leads to antisocial outcomes (Bender & Lösel, 2011; Ttofi, Farrington, & Lösel, 2012). Fortunately, we note, bullying incidents among youth appear to be declining, along with other forms of youth violence – although data on bullying have only been kept for approximately the past decade (Finkelhor, Turner, Ormrod, & Hamby, 2010; National Center for Education Statistics, 2015).

These facts, combined with case studies of shooters, seem to implicate bullying as a risk factor in school and other mass shootings. However, the case for bullying as a significant contributing factor in the developmental sequence of mass shooters is not as strong as it seems. It is difficult to explain how bullying could be an important cause of shootings when at least one fifth of all adolescents have been victims of bullying and only a miniscule fraction even contemplate shooting their peers. A counter to this argument is that any risk factor, whether mental illness or obsession with violence and weapons, leads only very rarely to a shooting. However, it is also the case that bullies and victims are not random individuals. For example, victims of bullying are likely to suffer from internalizing disorders, to lack social skills, and to be isolated; bullies are likely

to be externalizers who possess negative views of their school and community; and bully-victims (e.g., individuals who bully others and also report being bullied) are likely to be comorbid internalizers/externalizers who are socially rejected (Cook, Williams, Guerra, Kim, & Sadek, 2010). Because internalizing and externalizing problems are highly heritable, it is not surprising that bullying and victimization run in families (Allison, Roeger, Smith, & Isherwood, 2014; Ball et al., 2008).

To the extent that being a victim of bullying (or being a bully) interacts with other salient environmental phenomena and risk factors to create a heightened sense of alienation, rejection, and marginalization, it is possible that it contributes to mass and, especially, school shootings (Newman, 2013). We view it as more likely that it is a strong sense of injustice, desire for revenge and glory, and marginalization that is causally operative and that bullying or victimization simply serve as noncausal indicators that are often correlated with relevant factors, such as possessing low status, lacking social skills, having a mental illness, and being socially marginalized (Larkin, 2009). That said, we view bullying as worthy of much more study and scrutiny and find it more plausible as a causal factor than either violent video games and media or bad homes.

Conclusion

Mass shootings are extremely rare, traumatic, and little-understood events (Duwe, 2004; Shultz, Cohen, Muschert, & de Apodaca, 2013). However, because mass shootings can seemingly occur in any place (e.g., school, home, workplace) and at any time, they cause trauma and panic. Unfortunately, even with hundreds of scholars pouring through archives and official reports from well-funded agencies, we know very little about mass shooters. There does not seem to be a universal profile nor is there a typical shooter (Langman, 2013; Vossekuil et al., 2002). This should not be taken to mean that there are not general traits shared by mass shooters. Almost all of the shooters that have been studied in detail were male, exhibited evidence of mental illness, and perceived that they were treated unjustly in some way, whether metaphysically (e.g., by an unjust universe) or specifically by peers (Ferguson et al., 2011; Klein, 2005; Knoll, 2010a). Unfortunately, these general traits are also present in many hundreds of thousands of adolescents and adults who never harm another person.

It is arguably more important to dispel widely held myths about shooters. This might guard against harmful policies or scapegoating. As we have documented, there is little evidence to support the widely held belief that mass shooters are produced by “broken” homes or inattentive parents. In this chapter, we have also argued that excessive focus on bullying or violent media may lead to ineffectual policies. In conclusion, we urge caution and modesty among scholars and policy makers when examining potential explanations for mass shootings.

References

- Allison, S., Roeger, L., Smith, B., & Isherwood, L. (2014). Family histories of school bullying: Implications for parent-child psychotherapy. *Australasian Psychiatry*, *22*, 149–153.
- Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, *78*, 772–790.
- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., ... Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin*, *136*, 151–173. doi:10.1037/a0018251
- Ball, H. A., Arseneault, L., Taylor, A., Maughan, B., Caspi, A., & Moffitt, T. E. (2008). Genetic and environmental influences on victims, bullies and bully-victims in childhood. *Journal of Child Psychology and Psychiatry*, *49*, 104–112.
- Bender, D., & Lösel, F. (2011). Bullying at school as a predictor of delinquency, violence and other anti-social behaviour in adulthood. *Criminal Behaviour and Mental Health*, *21*, 99–106.
- Bornovalova, M. A., Huibregtse, B. M., Hicks, B. M., Keyes, M., McGue, M., & Iacono, W. (2013). Tests of a direct effect of childhood abuse on adult borderline personality disorder traits: A longitudinal discordant twin design. *Journal of Abnormal Psychology*, *122*, 180–194.
- Bouchard, T. J. (2004). Genetic influence on human psychological traits: A survey. *Current Directions in Psychological Science*, *13*, 148–151.
- Boutwell, B. B., & Beaver, K. M. (2010). The intergenerational transmission of low self-control. *Journal of Research in Crime and Delinquency*, *47*, 174–209.
- Breuer, J., Vogelgesang, J., Quandt, T., & Festl, R. (in press). Violent video games and physical aggression: Evidence for a selection effect among adolescents. *Psychology of Popular Media Culture*.
- Brooks, K. (1985, December 10). A tragic lesson: Community agonizes over causes of teen slayings/suicide. *The Seattle Times*. Retrieved from <http://nl.newsbank.com/>
- Brown, C. E., & Balter, J. (1985, November 27). 3 die as teen romance sours. *The Seattle Times*. Retrieved from <http://nl.newsbank.com/>
- Browner, M. (1988, June 6). Mad enough to kill: Driven by an insane rage, a young woman turns her guns on 8-year-old and wounds an entire community. *People*, *29*. Retrieved from <http://www.people.com/people/archive/article/0,20099121,00.html>
- Bureau of Justice Statistics. (2013). *Firearm violence, 1993–2011*. Retrieved from <http://bjs.gov/content/pub/pdf/fv9311.pdf>
- Bushman, B., Romer, D., & Jamieson, P. (2015). Distinguishing hypotheses from hyperbole in studies of media violence: A comment on Markey et al. *Human Communication Research*, *41*, 174–183.
- Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., ... Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, *297*, 851–854.

- Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly*, *25*, 65–83.
- Cullen, D. (2009). *Columbine*. New York: Twelve.
- Cullen, D. (2013, September 17). Let's stop naming mass shooters in our reporting. *BuzzFeed*. Retrieved from <http://www.buzzfeed.com/davecullen/stop-naming-mass-shooters-in-reporting#.ciYa9MLNND>
- Distel, M. A., Trull, T. J., Derom, C. A., Thiery, E. W., Grimmer, M. A., Martin, N. G., ... Boomsma, D. I. (2008). Heritability of borderline personality disorder features is similar across three countries. *Psychological Medicine*, *38*, 1219–1229.
- Duncan, L. E., & Keller, M. C. (2011). A critical review of the first 10 years of candidate gene-by-environment interaction research in psychiatry. *American Journal of Psychiatry*, *168*, 1041–1049.
- Duwe, G. (2004). The patterns and prevalence of mass murder in twentieth-century America. *Justice Quarterly*, *21*, 729–761.
- Fekkes, M., Pijpers, F. I., & Verloove-Vanhorick, S. P. (2004). Bullying behavior and associations with psychosomatic complaints and depression in victims. *The Journal of Pediatrics*, *144*, 17–22.
- Ferguson, C. J. (2007). Evidence for publication bias in video game violence effects literature: A meta-analytic review. *Aggression and Violent Behavior*, *12*, 470–482.
- Ferguson, C. J. (2008). The school shooting/violent video game link: Causal relationship or moral panic? *Journal of Investigative Psychology and Offender Profiling*, *5*, 25–37.
- Ferguson, C. J. (2014). Violent video games, mass shootings and the Supreme Court: Lessons for the legal community in the wake of recent free speech cases and mass shootings. *New Criminal Law Review*, *17*, 553–586.
- Ferguson, C. J. (in press). Do angry birds make for angry children? A meta-analysis of video game influences on children's and adolescents' aggression, mental health, prosocial behavior and academic performance. *Perspectives on Psychological Science*.
- Ferguson, C. J., Coulson, M., & Barnett, J. (2011). Psychological profiles of school shooters: Positive directions and one big wrong turn. *Journal of Police Crisis Negotiations*, *11*, 141–158.
- Ferguson, C. J., Rueda, S., Cruz, A., Ferguson, D., Fritz, S., & Smith, S. (2008). Violent video games and aggression: Causal relationship or byproduct of family violence and intrinsic violence motivation? *Criminal Justice and Behavior*, *35*, 311–332.
- Finkelhor, D., Turner, H., Ormrod, R., & Hamby, S. (2010). Trends in childhood violence and abuse exposure: Evidence from 2 national surveys. *Archives of Pediatric and Adolescent Medicine*, *164*, 238–242.
- Fox, J., & DeLateur, M. (2014). Mass shootings in America: Moving beyond Newtown. *Homicide Studies*, *18*, 125–145. doi:10.1177/1088767913510297
- Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct problems in children and adolescents? A comprehensive review. *Psychological Bulletin*, *140*, 1–57.
- Gibson, G. (1999). *Gone boy: A walkabout*. New York: Anchor Books.

- Greitemeyer, T., & Mügge, D. O. (2014). Video games do affect social outcomes: A meta-analytic review of the effects of violent and prosocial video game play. *Personality and Social Psychology Bulletin*, *40*, 578–589. doi:10.1177/0146167213520459
- Griffin, A., & Kovner, J. (2013a, February 17). Raising Adam Lanza. *The Hartford Courant*. Retrieved from <http://www.courant.com/news/connecticut/newtown-sandy-hook-school-shooting/hc-raising-adam-lanza-20130217,0,5614292,full.story>
- Griffin, A., & Kovner, J. (2013b, June 30). Adam Lanza's medical records reveal growing anxiety. *The Hartford Courant*. Retrieved from http://articles.courant.com/2013-06-30/news/hc-adam-lanza-pediatric-records-20130629_1_nancy-lanza-adam-lanza-danbury-hospital
- Hall, R. C., Day, T., & Hall, R. C. (2011). A plea for caution: Violent video games, the Supreme Court, and the role of science. *Mayo Clinic Proceedings*, *86*, 315–321.
- Harris, J. R. (2007). *No two alike: Human nature and human individuality*. New York: W. W. Norton.
- Harris Polls. (2013). Majority of Americans see connection between video games and violent behavior in teens. Retrieved from <http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/1160/ctl/ReadCustom%20Default/Default.aspx>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*, 61–83.
- Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research*, *14*, 206–221.
- Kaplan, J., Papajohn, G., & Zorn, E. (1990). *Murder of innocence: The tragic life and final rampage of Laurie Dann, "The schoolhouse killer."* New York: Warner.
- KCCI. (2012). Expert: Parents talk to your kids about video games. Retrieved from <http://www.kcci.com/news/central-iowa/Expert-Parents-talk-to-your-kids-about-video-games/-/9357080/17823232/-/qb6hq4/-/index.html>
- Keller, M. C. (2014). Gene x environment interaction studies have not properly controlled for potential confounders: The problem and the (simple) solution. *Biological Psychiatry*, *75*, 18–24.
- Kim-Cohen, J., Caspi, A., Taylor, A., Williams, B., Newcombe, R., Craig, I. W., & Moffitt, T. E. (2006). MAOA, maltreatment, and gene–environment interaction predicting children's mental health: New evidence and a meta-analysis. *Molecular Psychiatry*, *11*, 903–913.
- Kimmel, M. S., & Mahler, M. (2003). Adolescent masculinity, homophobia, and violence random school shootings, 1982–2001. *American Behavioral Scientist*, *46*, 1439–1458.
- Klein, J. (2005). Teaching her a lesson: Media misses boys' rage relating to girls in school shootings. *Crime, Media, Culture*, *1*, 90–97.
- Klein, J. (2012). *The bully society: School shootings and the crisis of bullying in America's schools*. New York: New York University Press.
- Knoll, J. L. (2010a). The “pseudocommando” mass murderer: Part I, the psychology of revenge and obliteration. *Journal of the American Academy of Psychiatry and the Law Online*, *38*, 87–94.

- Knoll, J. L. (2010b). The “pseudocommando” mass murderer: Part II, the language of revenge. *Journal of the American Academy of Psychiatry and the Law Online*, *38*, 263–272.
- Langman, P. (2009). Rampage school shooters: A typology. *Aggression and violent behavior*, *14*, 79–86.
- Langman, P. (2013). Thirty-five rampage school shooters: Trends, patterns, and typology. In N. Bockler, T. Seager, P. Sitzer, & W. Heitmeyer (Eds.), *School shootings: International research, case studies, and concepts for prevention* (pp. 131–156). New York: Springer.
- Lankford, A. (2013). A comparative analysis of suicide terrorists, and rampage, workplace and school shooters in the United States from 1990 to 2010. *Homicide Studies*.
- Larkin, R. W. (2009). The Columbine legacy rampage shootings as political acts. *American Behavioral Scientist*, *52*, 1309–1326.
- Larkin, R. W. (2013). Legitimated adolescent violence: Lessons from Columbine. In N. Bockler, T. Seager, P. Sitzer, & W. Heitmeyer (Eds.), *School shootings: International research, case studies, and concepts for prevention* (pp. 159–176). New York: Springer.
- Larsson, H., Andershed, H., & Lichtenstein, P. (2006). A genetic factor explains most of the variation in the psychopathic personality. *Journal of Abnormal Psychology*, *115*, 221–230.
- Leary, M. R., Kowalski, R. M., Smith, L., & Phillips, S. (2003). Teasing, rejection, and violence: Case studies of the school shootings. *Aggressive Behavior*, *29*, 202–214.
- Lereya, S. T., Winsper, C., Heron, J., Lewis, G., Gunnell, D., Fisher, H. L., & Wolke, D. (2013). Being bullied during childhood and the prospective pathways to self-harm in late adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, *52*, 608–618.
- Lichtenstein, P., Yip, B. H., Björk, C., Pawitan, Y., Cannon, T. D., Sullivan, P. F., & Hultman, C. M. (2009). Common genetic determinants of schizophrenia and bipolar disorder in Swedish families: A population-based study. *The Lancet*, *373*, 234–239.
- Markey, P. M., Markey, C. N., & French, J. E. (in press). Violent video games and real world violence: Rhetoric versus data. *Psychology of Popular Media Culture*.
- McCarthy, K. (1985, December 4). No one took girl’s threats seriously. *Associated Press*. Retrieved from <http://nl.newsbank.com/>
- McCauley, K. (2014). Investigative Report Arapahoe High School Case #CT13-44545. Retrieved from https://schoolshooters.info/sites/default/files/official_report_karl_pierson.pdf
- McGraw, P. (2007). Virginia Tech massacre: Interview with Larry King Live. Retrieved from <http://transcripts.cnn.com/TRANSCRIPTS/0704/16/lkl.01.html>
- Meloy, J., Hempel, A. G., Mohandie, K., Shiva, A. A., & Gray, B. T. (2001). Offender and offense characteristics of a nonrandom sample of adolescent mass murderers. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*, 719–728.
- Moore, D. W. (2001, April 5). Americans look to parents to stop school shootings. *Gallup*. Retrieved from <http://www.gallup.com/poll/1828/americans-look-parents-stop-school-shootings.aspx>

- National Center for Education Statistics. (2015). Measuring student safety: Bullying rates at school. Retrieved from <http://nces.ed.gov/blogs/nces/post/measuring-student-safety-bullying-rates-at-school>
- Newman, K. S. (2013). Adolescent culture and the tragedy of rampage shootings. In N. Bockler, T. Seager, P. Sitzler, & W. Heitmeyer (Eds.), *School shootings: International research, case studies, and concepts for prevention* (pp. 55–77). New York: Springer.
- Olweus, D. (2012). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology, 9*, 520–538.
- Oremus, W. (2012, December 21). In kindergarten killer, the video game the NRA blamed for school shootings, everyone has a gun. *Slate*. Retrieved from http://www.slate.com/blogs/future_tense/2012/12/21/kindergarten_killers_nra_s_wayne_lapierre_blames_violent_video_games_for.html
- Przybylski, A. (2014). Who believes electronic games cause real-world aggression? *Cyberpsychology, Behavior and Social Networking, 17*, 228–234.
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior, 15*, 112–120.
- Savage, J., & Yancey, C. (2008). The effects of media violence exposure on criminal aggression: A meta-analysis. *Criminal Justice and Behavior, 35*, 772–791.
- Sherry, J. (2007). Violent video games and aggression: Why can't we find links? In R. Preiss, B. Gayle, N. Burrell, M. Allen, & J. Bryant, (Eds.) *Mass media effects research: Advances through meta-analysis* (pp. 231–248). Mahwah, NJ: L. Erlbaum.
- Shultz, J., Cohen, A. M., Muschert, G. W., & de Apodaca, R. F. (2013). Fatal school shootings and the epidemiological context of firearm mortality in the United States. *Disaster Health, 1*, 1–18.
- State's Attorney for the Judicial District of Danbury. (2013). *Report of the State's Attorney for the Judicial District of Danbury on the Shootings at Sandy Hook Elementary School and 36 Yogananda Street, Newtown, Connecticut on December 14, 2012*. Danbury, CT: Office of the State's Attorney Judicial District of Danbury.
- Strasburger, V. C. (2007). Go ahead punk, make my day: It's time for pediatricians to take action against media violence. *Pediatrics, 119*, e1398–e1399.
- Strasburger, V. C., Donnerstein, E., & Bushman, B. J. (2014). Why is it so hard to believe that media influence children and adolescents? *Pediatrics, 133*, 571–573.
- Strasburger, V. C., & Grossman, D. (2001). How many more Columbines? What can pediatricians do about school and media violence? *Pediatric Annals, 30*, 87–94.
- Strasburger, V. C., Jordan, A. B., & Donnerstein, E. (2010). Health effects of media on children and adolescents. *Pediatrics, 125*, 756–767.
- Subcommittee on Youth Violence. (2013). *Youth violence: What we need to know*. Washington, DC: National Science Foundation.
- Swearer, S. M., Espelage, D. L., Vaillancourt, T., & Hymel, S. (2010). What can be done about school bullying? Linking research to educational practice. *Educational Researcher, 39*, 38–47.
- Ttofi, M. M., Farrington, D. P., & Lösel, F. (2012). School bullying as a predictor of violence later in life: A systematic review and meta-analysis of prospective longitudinal studies. *Aggression and Violent Behavior, 17*, 405–418.

- Verlinden, S., Hersen, M., & Thomas, J. (2000). Risk factors in school shootings. *Clinical Psychology Review, 20*, 3–56.
- Viding, E., Jones, A. P., Paul, J. F., Moffitt, T. E., & Plomin, R. (2008). Heritability of antisocial behaviour at 9: Do callous-unemotional traits matter? *Developmental Science, 11*, 17–22.
- von Salisch, M., Vogelgesang, J., Kristen, A., & Oppl, C. (2011). Preference for violent electronic games and aggressive behavior among children: The beginning of the downward spiral? *Media Psychology, 14*, 233–258. doi:10.1080/15213269.2011.596468
- Vossekuil, B., Fein, R. A., Reddy, M., Borum, R., & Modzeleski, W. (2002). *The final report and findings of the safe school initiative: Implications for the prevention of school attacks in the United States*. Washington, DC: U.S. Secret Service and U.S. Department of Education.
- Wang, J., Iannotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health, 45*, 368–375.
- Widom, C. S. (1989). The cycle of violence. *Science, 244*, 160–166.
- Wright, J., Beaver, K., Delisi, M., & Vaughn, M. (2008). Evidence of negligible parenting influences on self-control, delinquent peers, and delinquency in a sample of twins. *Justice Quarterly, 25*, 544–569.