Exposure to Bullying, Childhood Trauma, and Violence in Video Games Among Perpetrators of Mass Homicides: A Brief Report

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ABSTRACT

Perpetrators of mass homicides have often been believed to have experienced certain events in their childhoods that may have led to their crimes. Among the issues that were considered in this study were childhood trauma, which included abuse history, and history of childhood bullying. Another issue that was examined was whether they played violent video games as a child. Exposure to these variables were compared between a sample of 169 male firearm mass homicide perpetrators and preexisting research samples of the same age and gender who had not committed mass murders. Analyses were preregistered. Hypotheses that were tested included whether mass homicide perpetrators had experienced more childhood abuse, more childhood bullying or played more violent video games compared to matched samples. Results suggest that mass homicide perpetrators had experienced more abuse than other individuals, but not bullying. By contrast, mass homicide perpetrators had played fewer violent video games than had matched samples. These results seem to match previous data on mass homicide perpetrators.

KEYWORDS

mass homicide, violent video games, childhood trauma, abuse, bullying

The issue of mass homicides remains one of significant concern in the United States and elsewhere. Terms such as “mass homicide” and “mass shooting” may be used somewhat interchangeably in the press and, here, we adopt the definition of “mass homicide,” which is most commonly used in criminology (e.g., Fox & Levin, 2003; Holmes & Holmes, 1992). This definition specifies at least four individuals (other than the perpetrator) are killed in a single incident and excluding other categories of mass deaths such as terrorism, gang violence, or robberies. Numerous controversies remain over many issues related to mass homicides, such as whether they are increasing in number, the involvement of mental illness (Lankford & Cowan, 2020), and whether gun control might prevent them (Siegel et al., 2020). Among the issues of interest to the general public and policy makers is understanding the etiological origins of mass homicide: what developmental pathways lead someone to engage in a mass homicide.

Proposals for etiological paths for mass homicide are many and it is not our intent to exclude those beyond the scope of the current analysis. However, in the current paper, we focus on three main hypotheses related to mass homicide. Specifically, we focus on hypotheses that perpetrators of mass homicide may have been exposed to more abuse, more bullying, and more violent video games as children (e.g., see Commission on School Safety, 2018 for recent government investigation of related issues). We recognize that, of course, the phenomenon of mass homicides is complex, and that examination of any few variables necessarily simplifies any complex phenomena. Nonetheless, the examination of specific variables can help us to understand whether preconceptions of a phenomenon are accurate and whether these should be included in further theoretical models. For example, it had long been thought that, as per social cognitive theories, the mere

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presence of a weapon might facilitate aggression and violence though recent analyzes of the evidence base have proven this hypothesis to be controversial (Benjamin et al., 2018).

Regarding the issue of abuse, physical abuse exposure in childhood has long been associated with later commission of homicide (e.g., Lewis et al., 1985). However, this issue has been comparatively understudied for mass homicides. Some evidence has suggested that difficult life experiences are common in the histories of mass homicide perpetrators (Gill et al., 2016). However, more research would certainly be welcome.

As to the issue of bullying, the general public has long suspected a link between bullying exposure and mass homicides, particularly as relates to school shootings. However, current evidence to support this hypothesis has typically relied on fairly small samples (e.g., Raitanen et al., 2019). At present, the overall evidence for this hypothesis remains unclear (Stallings & Hall, 2019) and more data would be welcome.

Lastly, the issue of violence in video games has long been controversial. Some scholars have historically suggested links between violent games and mass homicides (see Markey, Males, et al., 2015 for full detailing). Other scholars, however, have contested this (Fox & DeLateur, 2014), referring to it as a myth. The issue of violent video game impact on aggression has been controversial. Some scholars have suggested that such games are linked to aggression in meta-analyses (e.g., Anderson et al., 2010), although reanalysis of this work suggested that experimental results were largely due to publication bias (Hilgard et al., 2017). Several studies in this realm have also experienced retractions. Preregistered studies, which reduce researcher expectancy effects by having researchers publish their hypotheses and data analysis plan in advance of data collection, have largely failed to find links between violent games and aggression (e.g., Hilgard et al., 2019; McCarthy et al., 2016; Przybylski & Weinstein, 2019). Longitudinal studies, likewise, have failed to provide evidence for long-term effects, with better quality studies less likely to find evidence for harm than poorer quality studies (Drummond et al., 2020). Thus, increasingly, the weight of evidence has not suggested that violent video games are meaningfully linked to serious aggression or violent crime, though samples of college students or youth in the general populace cannot be generalized to mass homicides. This relates to larger debates about whether, for instance, professional guilds such as the American Psychological Association have misled the public about links between violence in video games and aggression (see Ferguson et al., 2020 for a recent analysis of APA policy statements). Data on mass homicide perpetrators, however, remains limited.

Perhaps one of the most famous studies of mass homicide perpetrators for these issues was the 2002 Secret Service report on school shooters (United States Secret Service and United States Department of Education, 2002). This investigation included details of 37 school mass homicides, including 41 perpetrators, occurring between 1974 to 2000. Findings from this study were fairly nuanced. For instance, perpetrators came from a variety of family backgrounds, some more chaotic than others, although abuse wasn't as clearly specified as might be desired. Many perpetrators reported feeling bullied, although whether this was an accurate perception or not wasn't clear. Perpetrators generally had a lower-than-expected interest in violent video games or other media, although absent a control group, these figures are hard to interpret. A more recent report (United States Secret Service, 2021) examined 67 averted mass homicides targeting schools occurring between 2006 and 2018. The report concluded that issues of family violence and bullying were common for this population. Interest in violent themes, including past school shootings was common as well, although the report made only vague references to media violence with few details.

The Current Study

The current study sought to examine the experiencing of childhood abuse, bullying, and exposure to violence in video games in a large sample of mass homicide perpetrators. In each case, the sample of mass homicide

perpetrators will be compared to a control sample of similarly aged and gendered (i.e., male) individuals. Therefore, the hypotheses that were tested included:

H1: Mass homicide perpetrators have experienced more childhood trauma (or abuse) compared to individuals from the general populace.
H2: Mass homicide perpetrators have experienced more childhood bullying compared to individuals from the general populace.
H3: Mass homicide perpetrators have experienced played more violent video games compared to from the general populace.

Methods[1]

Perpetrators

The treatment population of cases of perpetrators in this study were collected from a database of mass homicide perpetrators cultivated by the Violence Project (Peterson & Densley, 2020). This database was derived from publicly available criminological data funded by the National Institute of Justice and specifically includes mass homicide perpetrators who killed four or more victims using firearms. Cases were sourced from existing mass homicide databases, as well as news reports, and this approach has been found to be valid in sourcing mass homicides, particularly given their widespread news coverage (Huff-Corzine & Corzine, 2020; Peterson et al., 2021). Crimes were committed from the years 1966 through 2020. For the video game analysis, perpetrators from the years 1992 through 2020 were included, encompassing years from which exposure to violence in video games was possible. The number of perpetrators that were analyzed from the mass homicide database was 173. Most perpetrators were male (4 were female). Females, however, were excluded from the analyzed sample to retain consistency with the male control samples, resulting in a final sample of 169. Ethnically, they were mixed with 90 (52%) White, 36 (20.8%) Black, 14 (8.1%) Latino, 11 (6.4%) Asian, with the remainder Native American, Middle Eastern, Other, or unreported. Ethnicity was unreported for 10 (5.9%) of perpetrators. Mean age was 34.08 (SD = 12.14). Mean number of victims killed were 7.21 (SD = 6.72).

Table 1
Sample Descriptives

Descriptives	Mass Homicide (Present Study)	González et al. (2015)	Wong & Schonlau (2013)	Olson et al. (2007)
Age (Mean)	34	27.5 (approx.)	24 (approx.)	12.9
Ethnicity	52% White	73% White	52% White	70% White
	21% Black	11% Black	26% Black	24% Black
	8% Latino	N/A	21% Latino	3% Latino
	6% Asian	15% Asian	N/A	3% Asian

Control Samples

Control samples were collected from studies of abuse, bullying, and video game violence exposure prevalence with male samples (acknowledging that there were a small number of females in the mass homicide database, they were eliminated from further analysis to avoid confounding). The control study related to childhood abuse exposure was González and colleagues (2015). This study focused on 2,928 men in the general public to

determine if there were indirect or direct pathways to violence and health issues in adulthood related to childhood maltreatment. The sample consisted of men aged 21 to 34, 73.8% of whom were White, 11.1% of whom were Black and 15.2% of whom were Asian/South Asian. In this sample, 6% reported experience childhood physical abuse. For bullying, a sample by Wong and Schonlau (2013) was used. This study used data from the National Longitudinal Study of Youth, a database that began in 1996 employing youth aged 12 to 16, putting respondents in their mid-20s. Surveys for this study were taken 10 years later in the 7th wave in 2007. This sample examined the life outcomes of just under 9,000 individuals. Bullying data was available for 4,510 males. For this sample, childhood bullying prevalence among males was 22%. Lastly, regarding violent video game exposure, we used a sample provided by Olson and colleagues (2007). Data were gathered from 1,254 participants in the form of a self-reported survey. This study focused on the play patterns of boys and girls to determine a correlation between gender and playing violent video games (Olson et al., 2007). The average age of participants was 12.9 and 90% were White. This sample was younger than the others, though this seemed appropriate for assessing adolescent violent game use, and samples of prevalence among adult males are rare. Among the boys, prevalence of violent video game exposure (defined as having played an M-rated for “mature” game) was 67.9%. Descriptives of all samples are included as Table 1.

Procedures

The statistical analyses that were used to examine our hypotheses were three one sample *t*-tests, which allowed the mass homicide database with proportions of individuals experiencing the three predictor variables in the three control studies. For the mass homicide perpetrator database, each participant was coded as either having experienced or not having experienced each of the three predictor variables (1 or 0). This allowed comparison with a criterion value based on the proportion of individuals experiencing the predictor variable in the three control samples (e.g., .06 for physical abuse, .22 for bullying and .679 for violent game exposure).

Results

The first hypothesis was that mass homicide perpetrators have experienced more childhood trauma (or abuse) compared to individuals from the general populace. This hypothesis was analyzed by using a one sample *t*-test comparing the mass homicide perpetrators against the analyzed proportions of childhood trauma (or abuse) in the control sample. For this, the childhood trauma variable was used, and perpetrators were coded as having experienced abuse if abuse was reported by any family member. First, it is worth noting that data were available for only 64 of the perpetrators. Among them, experiencing of abuse was consistent (92.2% had experienced reported abuse). After examining the descriptive statistics, a one sample *t*-test was used to the hypothesis related to abuse: $t(63) = 25.491$, $p < .001$. The effect size was Cohen’s $d = 3.19$. The results suggest that abuse was more likely to be reported for mass homicide perpetrators as compared to self-reported data from individuals in the general populace. This outcome supports this hypothesis. One possibility is that the missing data may cause an overrepresentation of abuse history among perpetrators. This was reexamined by making the assumption that every missing value was non-abuse. Rerunning the *t*-test still finds the association to be significant $t(172) = 7.774$, $p < .001$. Thus, even if every missing data point indicated an absence of abusiveness, our hypothesis would still be supported. Given that the data related to abuse was discrete, there was little clear basis from which to use imputation methods to address missing data.

The second hypothesis was that mass homicide perpetrators have experienced more childhood bullying compared to individuals from the general populace. This hypothesis was analyzed using a one sample *t*-test comparing the mass homicide perpetrators against the prevalence of childhood bullying in the control sample. First, the proportion of mass homicide perpetrators with data on bullying (n = 155) had a 19.4% prevalence rate for bullying. A one sample *t*-test can be used to compare the mass homicide perpetrators to the control sample: $t(154) = -.831$, $p = .407$. As such our hypothesis in this area was rejected. Our data suggest that

reports of bullying experienced by mass homicide perpetrators does not differ from self-reported bullying by men in the general populace.

The third hypothesis was that mass homicide perpetrators have experienced playing more violent video games compared to individuals from the general populace. Cases of perpetrators who committed their crimes before a time likely to have the opportunity to play highly violent games (1992) were eliminated from analysis. This was because extreme violence in games was generally less common before this time, with a rise of fighting and shooter games beginning in roughly 1992. Specifically, the databased coded whether the perpetrators were reported either to have played violent video games or definitively had not played violent video games. However, in some cases, perpetrators were known to have played video games, but the content of the games was unknown. Individuals in this last category were excluded from analysis as violent game exposure could not be confirmed. This left 111 perpetrators, among whom 21.6% were reported to have played violent video games. A one sample *t*-test was then used: $t(114) = -11.790$, $p < .001$. The effect size was Cohen's $d = -1.15$. The results found that mass homicide perpetrators experienced playing fewer violent video games rather compared to individuals from the general populace. This result was opposite of the hypothesis.

Discussion

The issue of the etiological origins of mass homicides remains under considerable debate. We sought, by examining a preexisting database of mass homicide perpetrators, to examine this issue related to experiences with childhood abuse, bullying, and exposure to violent video games. Our results were mixed for evidence to support common beliefs linking these predictors to mass homicides.

The first hypothesis focused on whether experiencing of childhood abuse would be predictive of mass homicide perpetration. Our analysis supported a hypothesized correlation. The results clearly found that the mass homicide perpetrators as children had experienced trauma (or abuse) in higher proportions than a control sample of males. This finding is correlational, of course, but does suggest some degree of familial transmission of violence across generations, which may relate to mass homicide. By any metric of interpreting effect size (e.g., Cohen, 1992), this effect size is quite large indeed, frankly, quite unusually so for social science research. This is reflective of the near ubiquity of reported abuse among the sample of mass homicide perpetrators, whereas abuse is much less common in the general population. As such, this appears to be a particularly strong predictor variable.

The second hypothesis focused on whether experiencing childhood bullying would relate to mass homicide perpetration. However, we found no significant difference in proportion of mass homicide perpetrators who experienced bullying compared to a control sample of males. It may be that childhood bullying possibly had less of an impact on future violence than society has come to believe. It is possible that childhood bullying may play more of a role in youthful shooters, and the United States Secret Service and United States Department of Education (2002) analysis suggested that youthful perpetrators commonly perceived being bullied. It is also possible that these perpetrators may be more sensitive to bullying or interpret ambiguous slights as bullying. More data on this is clearly needed.

The third hypothesis focused on whether mass homicide perpetrators had experienced more exposure to violent video games than a control sample of males. In fact, our analysis suggested the opposite: that mass homicide perpetrators experienced fewer violent video games than control males. The effect size was moderate in size, not nearly as large as that for abuse, though still non-trivial. This appears to be consistent with data from the United States Secret Service and United States Department of Education (2002) report. The theory for why this hypothesis wasn't supported was because violent video games do not influence a child/adult's mind into becoming a violent or aggressive person. Increasingly, evidence suggests that violent games have little impact even on minor aggression. As such, links between games and mass homicides are

largely mythical (Fox & DeLateur, 2014). As to why an inverse relationship may, in fact, exist, we don't conclude violent games necessarily prevent mass homicides. There are several possible explanations. One possibility is that, indeed, violent games reduce stress or provide a release for youth in crisis. Another is simply that violent game playing is normative among young males, as evidence by the high proportion in the Olson et al. (2007) study. Thus, any deviation from normative behavior, however circumstantial, may be something of a warning sign. In this sense, if playing violent video games is "normal" for youth (Olson, 2010), then not engaging in the behavior might be more common among struggling individuals than engaging in the behavior is, even if the behavior may cross moral lines among older adults. As another interesting example, though historically adults have worried about teens having sex, more recently, some scholars have argued that teens delaying sex is a worrying sign of delayed adulthood due to technology use and other factors (South & Lei, 2021).

Broader Implications

For decades, policy makers and scholars have wondered over the potential causes of mass homicides and how they might be prevented. Any complex behavior such as mass homicide undoubtedly has multiple causal factors. Our current study is correlational; however, correlation is a necessary precursor for causality and, as such, can point policy makers toward phenomenon what may help us to understand what elements may or may not help us to prevent future mass homicides.

With this in mind, policies that target reducing violence in the home may be particularly fruitful. Naturally, most people who experience violence in the home don't go on to become mass homicide perpetrators, nor even other violent criminals. However, family violence is one risk factor for violent crime in general and, as we see in the current study, mass homicide specifically. Trying to predict whom, based on their family history, would continue on to become a mass homicide perpetrator is unlikely to be fruitful, yet prevention and intervention strategies that target family violence broadly may help to reduce all forms of violent crime, including mass homicide.

By contrast, and somewhat a surprise to us, anti-bullying programs may be less helpful in this realm. The experience of bullying is fairly widespread, though it has been decreasing in recent years (Finkelhor, 2020). Thus, it's predictive value may be limited. It may be more the case that mass homicide perpetrators are injustice collectors viewing themselves as victims of societal ill-treatment more than, in reality, experiencing it to any degree different from the average youth or adult. It is possible that, once again, prevention programs broadly applied may, nonetheless, be helpful, although we observe that historically the success of such programs has been modest (Ferguson et al., 2007).

What we can most definitively say is that pursuing policies to reduce exposure to violent video games, particularly as they conflict with the First Amendment in the US, or free speech values elsewhere, are unlikely to be of much help. Our data were correlational, so we don't necessarily endorse the idea that violent games are cathartic in reducing the incidence of mass violence among those who play them although, broadly speaking, the release of highly popular violent games is generally associated with concomitant reductions in societal violence (Beerthuizen et al., 2017; Cunningham et al., 2016; Markey, Markey & French, 2015). Societal attention to the issue of video games is most likely to act as a distractor and, as such, pull the attention of policy makers and the public away from intervention and prevention efforts that actually may help.

Limitations

As with any study, ours has limitations. First, our data comprises the use of several secondary datasets. Although this approach can be useful, such datasets inevitably involved different methods and approaches in assessing their constructs. This can inevitably cause issues related to data management that can influence

the reliability and validity of comparisons made across datasets. Each dataset also carries individual strengths and limitations, such as the use of self-report in the control samples as opposed to the use of archival psychological autopsy type data for the mass homicide database. Second, it is possible that definitions of terms may differ from the database of mass homicide perpetrators to the control samples, causing some unreliability in comparisons. Third, our study considered only a limited number of predictors. Naturally, other issues may also play an important role in the etiology of mass homicide. By contrast, our analyses benefit from being preregistered, reducing the potential for false positive results due to researcher expectancy effects. Case controlled examinations, such as this one, have their limitations and it might be possible for some to overestimate the relationship between child abuse and mass homicide (and, again, we caution that most individuals exposed to child abuse do not go on to commit serious crimes), but this approach can be an excellent complement to studies of the general populace among whom mass homicides are exceedingly rare.

Conclusions

The frequency of mass homicides appears unlikely to abate in the near future. Much of the discussion around such acts focuses on policy issues such as those related to gun control and mental health. We believe these are worthwhile. A fuller understanding of etiological factors involved in the developmental pathway toward mass homicide can also be worthwhile. Studies that are preregistered and use a standardized approach can be particularly valuable. We hope that our own analysis provides one small step in better understanding which variables do and do not correlate with mass homicide perpetration.

NOTES

1. A preregistration of this study is available at: https://aspredicted.org/blind.php?x=d8sk9b.

DISCLOSURE STATEMENT

No potential conflicts of interest were reported by the authors.

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