



A longitudinal analysis of shooter games and their relationship with conduct disorder and self-reported delinquency☆



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ABSTRACT

Purpose: Despite several decades of research, little scholarly consensus has emerged regarding the role of violent video games in the development of youth psychopathology or crime.

Method: The current study employed the Avon Longitudinal Study of Parents and Children longitudinal dataset to examine the impact of the shooter game genre ownership in childhood on later adolescent conduct disorder and criminal behavior.

Analysis: Multivariate Poisson regressions with the robust estimator correlation matrix were performed comparing effects of independent and confounding variables.

Results: Results revealed that early childhood mental health symptoms at age seven related to ADHD, depression and early conduct disorder predicted criminal behavior at age fifteen. Male gender also predicted criminal behavior at age fifteen. However, exposure to shooter games did not predict adolescent conduct disorder or criminal behavior.

Conclusion: We have found support that suggests that the role of violent video games in the development of youth psychopathology or crime is very little if any. Lack of a relationship between exposure to shooter games and later conduct and criminal behavior problems may be understood within the context of the Catalyst Model.

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1. Introduction

For more than thirty years, there has been a concern among the public and lawmakers that violence depicted in video games may have an impact on violent behavior and delinquency in youth or young adults. Similarly, scholars have disagreed about whether violent video games impact behavior. Some researchers profess to have detected evidence of a strong relationship between video games and aggressive conduct (Anderson et al., 2008) whereas others have found evidence that such effects are weak (Etchells, Gage, Rutherford, & Munafò, 2016) or nonexistent (Durkin & Barber, 2002; Kutner & Olson, 2008; Unsworth, Devilly, & Ward, 2007). Researchers have also proposed that the effects of video games may only trigger aggression among individuals already exhibiting anger problems (Giumetti & Markey, 2007; Kirsh, 1998; Markey & Scherer, 2009).

Some scholars in the field of psychiatry have been concerned regarding the growing popularity of video games and their near ubiquity in contemporary culture. For instance, alongside issues related to violence, there has been much debate regarding whether video games are

addictive (Griffiths, 2008; Wood, 2008). Centers such as the American Academy of Child and Adolescent Psychiatry have produced statements claiming that the negative effects of media violence on children are well-established (Beresin, n.d.). Such statements can affect public opinion, policy and law, including efforts to regulate or censor media. Although evidence indicates that overuse of games may be correlated with problematic mental health outcomes (Desai, Krishnan-Sarin, Cavallo, & Potenza, 2010; Van Rooij, Meerkerk, Schoenmakers, Griffiths, & van de Mheen, 2010), however, other scholars express concern that effects may not be clear-cut or may reflect moral panics in society (Ferguson, 2010; Przybylski, Weinstein, & Murayama, 2017). Thus the statements and diagnoses related to overgaming such as those offered by the American Psychiatric Association remain controversial (Bean, Nielsen, van Rooij, & Ferguson, 2017).

One issue researchers have focused on has been the relationship between video games and crime. This issue has been difficult to discern given that many analyses rely on bivariate correlations which may result in proper controls not being used in studies. For example, video game studies that employ a relatively greater number of statistical controls tend to find weak or null results compared to studies including few numbers of statistical controls (Ferguson & Kilburn, 2009; Furuya-Kanamori & Doi, 2016). Similarly, when the effects of antisocial personality disorders as well as social variables are controlled, bivariate

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relationships between video game play and violence tend to disappear (e.g. Ybarra et al., 2008). The current study provides further evidence regarding this issue by examining the shooter game genre in a large longitudinal sample of youth.

1.1. Differing perspectives on potential video game effects

When analyzing the relationship between video games and aggression, there are three simple explanations of any possible correlations. The first is that video game playing influences the learning of others. This idea sources back to Bandura's social learning theory and social cognitive models of aggression (Anderson et al., 2008). The second is that video games are attractive to those who are overly aggressive and who seek out violent media, effectively exhibiting a selection effect. Evidence for this viewpoint has accumulated over the last two decades (Breuer, Vogelgesang, Quandt, & Festl, 2015; Etchells et al., 2016). The third is that any relationship between video game use and overly aggressive behavior is spurious and these two have little or no effect on each other. This third view suggests that there is little value in attempting to predict low base-rate behaviors (e.g. clinical conduct disorder, violent crime) from a high base-rate behavior (e.g. childhood exposure to action-oriented video games.)

As noted above, the idea that the violence in video games encourages children to be violent can be traced back to Bandura's broader propositions regarding social learning (Bandura, Ross, & Ross, 1961, 1963). Although Bandura did not discuss video games in these articles, he proposed that children's mere exposure to aggressive models encouraged aggression among youth. Much of the research in this area has been focused on whether this thesis is empirically strong and can be extended to violent media (Anderson, 2004; Huesmann, 2007). Despite the advocacy of supporters, many researchers suggest that the evidence base is shakier than often advertised (Cumberbatch, 2008; Mitrofan, Paul, & Spencer, 2009; Olson, 2004; Savage, 2004). Indeed, the Bandura studies themselves have come under criticism for lacking generalizability and potentially reflecting demand characteristics rather than true aggression (Tedeschi & Quigley, 1996.)

Another view of the possible correlation between video game use and aggression is that aggressive traits within the child encourage violent video game usage. This, in essence, refers to a selection effect in which individuals who are more aggressive are drawn to violent video games. In such a circumstance correlation may exist between violent games and aggression, but the direction of causality moves from aggressive traits to violent game play, and not the inverse. Both aggressive traits and being drawn to violent video games may be influenced by underlying genetic influences, for instance. Genetic influences and social forces (e.g., family relationships and peer networks) that are more influential than video games encourage an aggressive personality that seeks out certain forms of media like violent video games (McCown, Keiser, Mulhearn, & Williamson, 1997; Rentfrow & Gosling, 2003). Some evidence has suggested that genetics may predict violent media preferences (Nikkelen et al., 2014) and that genetics may explain correlations between violent media use and criminal violence, such that correlations disappear once genetics are controlled for (Schwartz & Beaver, 2016). Other studies have found evidence that suggests aggressive personalities are drawn to violent video games but that violent video games do not, in turn, promote aggression or violence (Breuer et al., 2015).

Finally, there is the "null" point of view which maintains that video games and delinquency or excessive aggression have little or no influence on each other and any correlation is spurious. Although small correlations may exist between violent game play and aggressive outcomes, these are not likely causal and are due to other, underlying variables. They argue that there may be a spurious, zero-order correlation between video game play and aggressive outcomes, that disappear when proper control variables are put into place. For instance, boys both play more violent video games and

are more physically aggressive (Kutner & Olson, 2008); thus, any correlation between games and aggression may merely be effected by gender differences. Controlling for gender may eliminate or reduce spurious correlations between violent game play and aggression.

1.2. The need for longitudinal studies

As part of the difficulty in distinguishing among these views, it is not always clear what evidence is most conclusive. Researchers have recognized (Breuer et al., 2015; Etchells et al., 2016) that longitudinal studies are particularly helpful in elucidating on the time sequence between action oriented game use and violent or criminal behaviors, particularly once other relevant control variables are included in analyses.

There have been a few prospective/longitudinal studies that have examined the issue of video game violence, typically returning fairly weak to no evidence for video game effects (Ferguson, 2010; Furuya-Kanamori & Doi, 2016). With these studies, the more careful and comprehensive the controls, the weaker the effects of video games. However, most of these prospective studies span only a few years, and they do not use multiple assessment periods over the wider span of years that typically mark longitudinal designs. There is a lack of studies with robust methodology that look at prolonged use or long-term effects particularly beginning in early childhood.

Another issue that has recently been addressed is the complexity of games that are lumped together under one overly broad penumbra of "violent" (Etchells et al., 2016). Although the label "violent video game" has emotional appeal, its conceptual utility is limited. Typical academic definitions of "violent video game" involve any aggressive and unwanted action by one character against another (Thompson & Haninger, 2001). However, such definitions are so broad as to include almost all games, even mild games such as *Pac Man* or *Space Invaders*. This is similar to including religious texts such as the Bible or Ramayana, horror fiction, Shakespearean plays, comic books, Harry Potter, etc., under a "violent literature" penumbra.

One approach to working around this conceptual problem is to consider specific genres of video games rather than assuming an omnibus label, such as "violent video game", has much utility. The downside to using genres is a straightforward one. If "violence" is the conceptual unit of interest, most genres (even fairly innocuous sounding genres such as puzzle games) include both violent and non-violent exemplars. However, certain genres such as shoot 'em up or shooter (henceforth called shooter) games contain violence, at least to some degree, as a default. Etchells et al. (2016) provide one excellent example of a longitudinal study (using the Avon Longitudinal Study of Parents and Children dataset) employing shooter games as a predictor variable for later development of conduct disorder while still controlling for other confounding variables, ultimately finding very weak effects. The Avon Longitudinal Study of Parents and Children (ALSPAC), also known as Children of the 90s, is a world-leading birth cohort study, charting the health of 14,500 families in the Bristol area. However, this study did not look at the effect of the model on delinquency, only conduct disorder. In addition, although the Etchells et al. study included an impressive array of potential control variables, some child history of mental health symptoms was not included. Some prior research has indicated that prior childhood difficulties with mental health are a reliable predictor of later delinquency (Ferguson & Kilburn, 2009). Although Etchells et al. is an example of a well-done longitudinal study, we felt considering additional mental health variables as well as delinquency as an outcome was worth considering. Given prior evidence (Adachi & Willoughby, 2011) that competitiveness in games may also increase aggression, it seemed reasonable to include competitive (i.e. sports games) and violent games (i.e. shooter games).

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