Who plays violent video games? An exploratory analysis of predictors of playing violent games

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A B S T R A C T

For roughly two decades, academics, politicians, and the media have debated the relationship between playing violent video games and engaging in violent acts. Despite the extensive attention paid to this possible outcome, no such spotlight has been placed on what leads to youth playing violent video games, which would provide the necessary context for potential later effects. The present study uses five datasets that include over 19,000 American youth in fifth through twelfth grades to provide an exploratory, inductive investigation into the predictors of playing violent video games. The results identify several themes of predictors of violent game play, including gender, family, health and nutrition, and various other social factors. These findings provide a foundation for future research to investigate and test these possible relationships.

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1. Introduction

Violent video games have been a controversial subject for decades. Although violent and gruesome acts in video games date back to the early days of the medium, the concern became more public and widespread following the release of *Mortal Kombat* in 1992. Moreover, that particular game is often credited (e.g., Crossley, 2014) as having started a moral panic over violence in video games and launching political interest in the subject, as well as leading to the creation of ratings groups, such as the Entertainment Software Rating Board, for video games. More recently, state laws designed to limit minors' ability to purchase violent games resulted in a Supreme Court of the United States case that concluded that there was not convincing evidence that video games cause violence (Brown v. Entertainment Merchants Association, 2011). Today, the controversy continues unabated, with an increasingly common focus on perpetrators of mass shooting having played violent video games. Several major media outlets, for example, published news articles stating that the 2016 Munich shooter had played a game in the *Counter-Strike* series. Many of these stories (e.g., Reuters, 2016) included a quote from a high ranking police authority stating that the game is "played by nearly every known rampage killer." To date, the *Counter-Strike* franchise has sold over 60 million copies (Steam Spy, n.d.), so even if the claim from the quote is factual (no evidence is available to suggest that it is), it omits the context that such perpetrators would represent less than one-hundredth of 1% of this one game's players. Similarly, following the 2012 mass shooting in Newtown,

Connecticut, President Obama called for funding for research into the connection between violent video games and gun violence (Molina, 2013). In contrast, connections between violent games and mass shootings have been described as a myth in scholarly research (Fox & DeLateur, 2014).

During the same time period that video games have been the focus of media and political attention, much research on the subject has been conducted and published. A sizable amount of this research has focused on aggression, showing that, for example, playing violent video games results in short-term rises in aggressive behavior in comparison to a non-violent control (Bartholow, Sestir, & Davis, 2005), though some studies also find no difference (McCarthy, Coley, Wagner, Zengel, & Basham, 2016). A meta-analysis of hundreds of such studies supported the presence of such a link (Anderson et al., 2010), though later re-analysis argued that bias led to an overestimation of the effect (Hilgard, Engelhardt, & Rouder, in press). The American Academy of Pediatrics Council on Communications and Media (2016) found this evidence strong enough to issue a policy statement, noting that there is "proven scientific connection between virtual violence and real-world aggression" (p. 5) and lamented that "unfortunately, media reports frequently present 'both sides' of the... issue" by consulting "a contrarian academic" (p. 3). Despite this bold stance, it remains quite debatable whether the relationship found in research extends to real-world violence. Specifically, a growing number of studies examining actual violence rather than aggression within an experiment find that the correlation that exists is largely or entirely lost after controlling for other influences (Breuer, Vogelgesang, Quandt, & Festl, 2015; DeCamp, 2015; DeCamp & Ferguson, 2017; Gunter & Daly, 2012; Przybylski & Mishkin, 2016; von Salisch, Vogelgesang, Kristen, & Oppl, 2011;

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Wallenius & Punamäki, 2008; Ward, 2010). Recent meta-analyses examining the connection with violence found null to trivial effects from video games (Ferguson, 2015; Furuya-Kanamori & Doi, 2016). Thus, the effects of violent video games on violence or long-term aggression remain unclear.

One possible reason for differing conclusions, even when examining the same outcome, is that there may be a spurious relationship between playing violent video games and engaging in violence (DeCamp, 2015; Gunter & Daly, 2012). That is, a youth who chooses to play violent games or is permitted by his/her parents to play such games may already be more prone to violence irrespective of and prior to playing such games. The present study examines the predictors of playing violent games in order to begin building toward an understanding of the mechanisms that might lead some youth toward violent games more than others.

2. Predictors of violent video game play

There have been hundreds of studies that have examined violent video games, yet nearly all of them have focused on the potential outcome of playing violent video games. In contrast, there has been limited investigation into the matter of who plays violent video games. Although research into this area is rare, a few studies have examined this topic previously.

Demographical and media consumption behaviors have been investigated as predictors of violent game play. Not surprisingly, boys have been found to be significantly more likely than girls to play violent video games in many studies (e.g., Kasumovic, Blake, Dixson, & Denson, 2015; Olson et al., 2007), and the effect from gender is notable as being a substantively powerful predictor as well (Olson et al., 2007). Additionally, indicators of greater prevalence of media consumption (including playing in the bedroom and playing more hours per day) and social gaming (playing with friends and playing with strangers online) also positively correlated with playing violent video games (Olson et al., 2007).

In more personality-focused research, one study found that time spent playing violent video games is positively correlated with being more open and with being less agreeable (Chory & Goodboy, 2011). In addition to observing these same effects again, examining whether someone's favorite game was violent also identified positive relationships between violent video games and extroverted and neurotic personality types (Chory & Goodboy, 2011). Violent game play has also been connected to sexuality, with individuals (adults) who have a greater interest in sexual intercourse (Kasumovic et al., 2015). Research also finds that women who play violent video games rate themselves as more desirable to men than those who do not play violent games (Kasumovic et al., 2015).

What has more rarely been examined are social factors and behaviors not directly connected to media. For example, although it has been found that there is no significant correlation (positive or negative) between playing video games with parents and playing violent video games (Olson et al., 2007), the parental relationship in general has not been explored as an influence on violent media consumption. This is particularly at odds with the justification for legislation over violent video games relating to parental roles in deciding what media is acceptable for children (see Brown v. Entertainment Merchants Association, 2011, or Justice Thomas's dissent thereof). The parental and social context for playing violent video games is a meaningful part of understanding this issue. Such a context for an individual might include parents who encourage or are permissive of consuming violent media, peer pressure to play the same types of games as friends, norms and expectations based on gender or social groups, etc. These social forces can influence both desires relating to media and other aspects of personality. If, for example, research were to one day conclude that there is a causal relationship between playing violent video games and engaging in violent behavior, then understanding the antecedent causes of violent

game play would be invaluable in offering a full-range of implications. If, on the other hand, it were determined that the relationship between playing violent video games and violent actions were spurious, then understanding the mutual predictors would again be beneficial as they relate to an underlying desire toward violence. The present study investigates this context for playing violent video games through the use of datasets encompassing many social and familial variables with large numbers of youth participants at various ages.

3. Material and methods

The data used for these analyses come from a variety of surveys conducted in public and public-charter schools in the state of Delaware between January and June 2015. These surveys include the fifth, eighth, and eleventh grade Delaware School Survey (DSS), as well as the middle school and high school Delaware Youth Risk Behavior Survey (YRBS). These surveys were selected for this study because they include large samples and are omnibus surveys that cover many areas suitable for predicting behaviors. The DSS surveys are designed to be a census of students present on the day of administration in their respective grades, minus students who refused to participate, who were denied parental consent, or who were in a classroom randomly selected to receive a YRBS survey instead (eighth and eleventh grades only). The YRBS surveys are designed to include a random sample of classrooms in each school, again minus students who refused to participate or who were denied parental consent. Under the institutional review board approved protocol, parental consent is obtained passively (i.e., parents must notify the school if they object), and refusal to participate (by parents or students) is rare. All surveys were administered in classrooms during a normal class period. The response rates ranged from a low of 97% to a high of 99%. The sample sizes were 6934 for fifth grade, 5133 for eighth grade, 3886 for eleventh grade, 3102 for middle school, and 2777 for high school.

3.1. Variables

The main variable of interest for this study is playing violent video games. This was measured using the question, "how often on average do you play violent video games, such as games that are rated M?" This question was includes on all surveys at all grade levels. Participants were given a series of responses ranging from never to more than ten hours per week. Because this study is interested in the decision to play violent video games rather than the amount of game play (which may be affected by other factors than merely the desire to play them), a dichotomous recode indicating whether the participant never or ever plays violent video games is used for these analyses.[1] Descriptive statistics for playing video games by grade are displayed in Table 1.

The independent variables used in these analyses are too numerous to be listed individually (see below for a discussion of this design choice and why it is appropriate). However, question numbers are provided in the Appendix A to allow for replication and for further understanding of this study's exact design. Rather than select variables to include, the approached used here was to use all variables in the datasets except for those specifically chosen to be excluded. The variables selected to be withheld from analysis were those associated with possible outcomes, including violent or deviant acts and substance use, as well as variables that would be methodologically challenging to use in a regression, such as ZIP code.

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[1] The second response category was "very rarely." This answer could, depending on interpretation by a participant, be inclusive of individual who tried, but did not like or continue, playing violent games. The analyses performed here were alternative performed using a recode that compared never/very rarely to the other responses (i.e., switching which category very rarely responses were coded as). The results were markedly similar and would lead to the same conclusions.