Much Ado About Adoing to Much: Analyzing the Critiques of Anderson, Ferguson, and Violent Video Game Research

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Abstract

Studies on the affects of human aggression and violent video games have become fraught with contention and contradiction from two major research groups, Anderson and Ferguson. This paper analysis Anderson et al.'s 2010 meta-analyses as well as the string of responses to it. Discussions and concerns of politicization of the field itself as well as public opinions and interpretations of the data. The conclusion is that interpretation of similar data is creating a rift in the field and preventing the public from making meaningful conclusions. Better interaction and clearer communication with the public is encouraged, as well as allowing other groups to step in to break up the establishment of the two popular and competing camps.

Introduction

Violent video games and their potential effects on aggression are a very hot button topic these days and certainly for good reason. Over the course of the last two decades, video games have gone from being a niche hobby to a massive multi-billion dollar industry that is all pervasive. A huge selection of games awaiting anyone with a smartphone, tablet computer, PC, or game console, many of which are cheap if not free. And, yes, some of these games definitely contain violent content and actions. With the ease of access to this engaging violent content, it is no surprise that there has been concern of the effects that video games can have on their consumers. There have been two major research groups who have used meta-analysis techniques to determine if the consumption of violent video games has a noticeable effect on increasing aggression behavior, affect, and cognition. Anderson's research concludes that there is a positive correlation for the increase of these traits. Ferguson, on the other hand, disputes these findings as being weak, often citing missing variables or publication biases in the research field.

The goal of this paper is the look at the most recent meta-analysis conducted by Anderson et al. in 2010, the critique of said paper by Ferguson and Kilburn, and the following rebuttal by Bushman and Rothstein. While it is impossible to draw a scientific conclusion of sorts from this narrative review of these meta-analyses, the idea of this paper is to highlight potential points of contention within these two major camps in an attempt to postulate of problem areas in the current research literature and hopefully offer ideas for future research in this field.

Literature Review

In 2007, Ferguson conducted a meta-analysis to demonstrate a publication bias against data proving that violent video games had very little to do with increasing aggression in those who consumed it. In particular, the results of the meta-analysis appeared to suggest that studies using less standardized measurements of aggression tended to lead to increased effect size (Ferguson, 2007). Ferguson and Kilburn (2009) subsequently conducted a meta-analysis of violent video game studies, concluding that violent video games had very little impact on increasing aggression. In order to demonstrate their claim, Ferguson and Kilburn used methods to account for publication bias, the 'trim and fill' method in particular, to attempt to correct the data. According to their findings, the effect sizes were $r = .15$ for the uncorrected data and $r = .08$ for the corrected effect size (Ferguson & Kilburn, 2009).

In a 2010 meta-analysis, another team of researchers conducted a very through and in-depth analysis of various studies from both America and Japan (Anderson et al., 2010). In this study, Anderson et al. (2010) question many of Ferguson's methods in his previous meta-analysis such as Ferguson's exclusive usage of published literature (Ferguson, 2007; Ferguson & Kilburn, 2009), incorrect usage of the 'trim and fill' method for finding a 'true' effect size when it's primary purpose is simply assess the impact of missing data instead of filling in for it, and the large overlap of studies between the 2007 and 2009 meta-analyses which prevented those findings from being independent of each other (Anderson et al., 2010). Instead, Anderson et al. (2010) concluded that the social cognitive theoretical view fit the data for violent video games and that exposure to violent video games was positively associated with aggressive behavior, cognition and affect. The overall estimate of the effects were $r = .19$ for all studies and $r = .24$ for studies of higher method quality (Anderson et al., 2010).

Ferguson and Kilburn (2010) then wrote a response to findings of Anderson et. al. (2010). In particular, Ferguson and Kilburn address their exclusive use of published studies and the use of unpublished studies in the meta-analysis conducted by Anderson et al. (2010). Ferguson and Kilburn were highly critical of the methods Anderson et al. (2010) used to obtain unpublished studies. Specifically, Ferguson and Kilburn (2010) mentioned that the majority of the unpublished studies, while differing from hypothesis advanced by Anderson et al. (2010), came mostly from research conducted by Anderson's research group and colleagues. According to Ferguson and Kilburn no other research groups were represented, potentially biasing the findings of the Anderson et al. (2010) in favor of their own hypothesis. Ferguson and Kilburn also expressed a concern of politicization in the field of study, increasing the chance of publication bias and the suppressing of data and literature not in line dominant agendas. In other words, studies showing small or no effect of video games on aggression would be unlikely to be reported in the first place (Ferguson & Kilburn, 2010). Additionally, Ferguson & Kilburn expressed concern that use of many unstandardized measurements are used frequently in the studies selected by Anderson et al. (2010), and that these unstandardized methods allow for various way to interpret the data and therefore allowing researchers to choose the outcomes that best fit their priori hypothesis. According to Ferguson and Kilburn, (2010) the average effect sizes reported by Anderson et al. (2010) and the effect sizes found in the literature overall are perhaps too liberal as a consequence. Finally, Ferguson and Kilburn argued that despite the increase of violent video game sale, crime rates were decreasing to all-time lows. They cited data of the sales of video versus youth crime rates over time with a correlation coefficient of r = .-95. They argued that the estimated effect sizes reported by Anderson et. al. (2010) were not on par with criminological effect size estimates and that the focus on violent video games was

distracting from more important causes such as poverty, peer influence, depression, family violence, and genetic by environment interactions (Ferguson & Kilburn, 2010).

Bushman and Rothstein (2010), co-authors in the Anderson et al. meta-analysis, responded in these criticisms in another paper. They countered Ferguson's concern about the usage of unpublished studies, mentioning that the finding and usage of unpublished studies is a key way of removing publication bias from a study even though there is no way to find all such studies that may meet the inclusion criteria. Bushman and Rothstein (2010) agreed with Ferguson & Kilburn's (2010) concern of politicization in the field, but mention that politicization of the video game research could also lead to the suppression of reports that find exceptionally large effects of violent video games and aggression. They address Ferguson and Kilburn's (2010) complaint that many of the studies that were considered missing were not, in fact, missed, but were not available in time for the cut-off prior to publication. They also mention that other research groups were not asked to present unpublished studies and the studies that were not included were not available on PsycINFO or MEDLINE, the databases used in gathering the research for their meta-analysis (2010). They question Ferguson and Kilburn's claim that the meta-analysis of both groups found an uncorrected effect size of r = .15, as this is not what Anderson et al. (2010) had reported, though it does equal the 'best partials' estimate, which is a corrected estimate. They also dismiss the notion that the effect sizes are too small to be worthwhile, noting that according conventional standards (Cohen, 1988) the correlations reflect effect sizes that are between small and medium. This falls in line other effect sizes to other risk factors for aggressive behavior (U.S. Department of Health and Human Services, 2001). Finally, they agree that the usage of unstandardized measures could become an issue if researchers were

systematically choosing a measure based on the size of the effect. Larger effect sizes would have been reported due to inflation, but the sizes reported by Anderson et al. were not (2010).

Points of Contention

There are several points of contention between these the arguments of these papers that will be discussed:

A. The usage unpublished articles. In particular, why were other research group not asked to include unpublished studies?

B. The comparison and correlation of differing statistics. In particular, the case of youth crime rate declining versus the increase in sales of violent video games.

C. Politicization of the field. Whom is being suppressed or creating a red herring, if anyone? Are agendas getting in the way?

D. Public perception of research. Does all of this ado have less to do with the data and more to do with public attitude?

Discussion

A. It is worth pointing out that Anderson et al. (2010) did not ask other groups for unpublished studies in this field (Bushman and Rothstein 2010). While they do explain that there were many studies not ready in time for the cut-off that had to have been excluded and that some unpublished studies did not meet the criteria to be included. This is a fair and valid reasoning. I cannot fathom, however, why in such a contentious field of study, and for an analysis as comprehensive as this, why other groups were not asked for their studies. Perhaps the wording of this was statement was inaccurate? It could be the case they Anderson et al. did in fact include as much research as they could find within the PsycINFO and MEDLINE databases from other groups, and simply did not feel the need to ask. I would wager that this is the case instead of dubious intent, but the wording of this simple statement initially comes off as exclusionary and contentious. This is not helped by the fact that much of the unpublished studies do come from Anderson and his colleagues. It would be easy to interpret this as possible bias in the selection process. However, the data does not seem to suggest to be the case.

B. Ferguson and Kilburn's (2010) use of data showing the very strong negative correlation between in increase in violent video games versus youth crime over time is highly misleading. While it is true that there is a negative correlation, these events do not necessarily have a causal link. Video games have exploded in popularity in the last decade as well as their proliferation. It stands to reason that as games become more popular and widespread, that sales of these games would also increase. The increase of violent video games is also a function of this increase in overall sales. While one could argue that more kids are playing violent video games instead of going out and committing crimes, that's a very questionable premise and the video games need not be violent games in the first place. Additionally, Bushman and Rothstein (2010)

mention that they never claimed that national violent crime data to be a good test of media violence effects and that researchers in the field do not claim violent media to be the most important risk factor for violent behavior.

C. Politicization of this area of research is a very real and dangerous issue. Much as cigarette companies never wanted information of the dangers of their products to be known, violent video games being a risk factor for increased aggression is not in the best interests of video game makers. It would seem that there is certainly something at play as even the differing viewpoints seem to be 'camp Anderson' or 'camp Ferguson'. Indeed, Ferguson's most recent meta-analysis in 2015 also drew considerable criticism from a variety of researchers (Boxer et al., 2015; Gentile, 2015; Markey, 2015; Rothstein and Bushman, 2015; Valkenburg, 2015). Rothstein and Bushman (2015) go as far to say that Ferguson's most recent meta-analysis should never have been accepted for publication (2015). The current research appears gridlocked between two groups and it appears that the current work in this field is less about the actual data and more about posturing. Both sides are finding similar effect sizes, but are interpreting their findings in different ways. Perhaps it is time to introduce a third party to this mix? At the very least, some middle ground needs to be found in methodologies or perhaps a rethinking to the meta-analysis approach to this topic. However, the sincerity of both sides does not seem to be in question and there is no need to believe that either side is trying to create a red herring. To make an accusation such as that is far too bold and not the intent of this paper. It only appears that different interpretations of the data are creating a political-esque impasse.

D. As mentioned in the previous section, interpretation of the data seems to be a key underlying issue and it's certainly not helped by the media's latching on to one study or the other and presenting it unfettered fact. Indeed, it is worth reminding that Anderson et al. only find

causal risk and do not overstate this. Playing violent video games do not mean that a person will, without doubt, become more aggressive and violent, just as smoking does not ensure one will have lung cancer. The findings only show that there is certainly a risk in the engaging in this behavior. Also, even if the effect size is only a moderate causal risk, this does not warrant the dismissal of evidence. Huesmann, in a response to all of these criticisms, points out that many attempting to dismiss media violence studies as being insignificant seem to lack a comprehension of observational learning theory and that such disbelief may stem from an American distaste for anyone saying what we should look at or play at (Huesmann, 2010). It is very easy, especially with two camp arguing over interpretation of data, to disregard the research. It is vital that researchers in this field communicate their findings clearly with the public. To his credit, Ferguson is much more apt to do so, which may explain why public opinion seems to go in his favor.

Conclusion

There is currently no reason to suspect the meta-analysis Anderson et al. (2010) of committing any major flaws in methods or practices. The study clearly demonstrates that consumption of violent video games does lead to a causal risk of increased aggressive behavior and cognition. Most of the controversy surrounding this research lies with the interpretation of effect size, which is moderate within the conventions of research in the field, but mathematically low when taken out of context. However, the data are still valid. Within the field itself, researchers need to find a way to break their current impasse of interpretation. This is not to say that there should not be more research, or that criticisms do not add to discussions in the field, but that at present there is enough ruckus between these two camps as is and that continuing to feed into it is distracting from the issue at hand. Furthermore, it is the goal of a researcher to find

data and inform. We must be careful to remember that the general public will likely not read a very dense study and digest all the methods, practices, and figures within and would rather depend on being told the general idea. Generalizing is not bad in itself, but presents the risk further dividing the stances in this field. It is healthy that others keep our works and findings in check and question, but it presents a problem when we ourselves cannot come to an agreement over similar findings, making it easier for those we mean to inform to think that the 'jury is still out', or even worse, to dismiss our work altogether.

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