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ORIGINAL ARTICLE

Does Media Violence Predict Societal Violence? It Depends on What You Look at and When

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This article presents 2 studies of the association of media violence rates with societal violence rates. In the first study, movie violence and homicide rates are examined across the 20th century and into the 21st (1920–2005). Throughout the mid-20th century small-to-moderate correlational relationships can be observed between movie violence and homicide rates in the United States. This trend reversed in the early and latter 20th century, with movie violence rates inversely related to homicide rates. In the second study, videogame violence consumption is examined against youth violence rates in the previous 2 decades. Videogame consumption is associated with a decline in youth violence rates. Results suggest that societal consumption of media violence is not predictive of increased societal violence rates.

Keywords: Violence, Media Violence, Movies, Homicide, Mass Media.

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There are probably few cultural debates that have been waged for so long as the issue of whether media violence contributes meaningfully to societal violence. Following tragic mass shooting events committed by younger shooters, many politicians point to cultural influences as a potential contributing factor (e.g., Boleik, 2012), although others dismiss media as a contributing factor (e.g., Palmer, 2013). Similar divisions are seen within the social science community. For example, some professional advocacy groups such as the American Psychological Association (APA, 2005) have released policy statements unequivocally linking media violence to societal aggression. Recently, however, a group of approximately 230 media scholars, criminologists, and psychologists wrote an open letter to the APA asking them to retire their policy statements and refrain from making such causal attributions (Consortium of Scholars, 2013). As such, no consensus among scholars exists regarding the impact of media violence.

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Evidence for and against beliefs in media violence effects are parsed from multiple sources such as psychological laboratory experiments, correlational, and longitudinal studies. Opinions on the validity, consistency, and meaningfulness of these studies remain mixed (e.g., Murray, 2008; Savage, 2008). Results of such studies have been inconsistent and some scholars have suggested that the studies themselves may be influenced by societal narratives regarding media effects (Anderson, 2008).

Evidence from experiments

AQ1 Much of the discussion of whether media violence does or does not contribute to societal violence has focused on laboratory based studies of aggression. Most such experiments have focused on lesser aggressive outcomes ranging from filling in the missing letters of words through delivering nonpainful noise bursts to a consenting opponent. These measures of aggression and their ability to inform about real-world violence have been controversial (Kutner & Olson, 2008). Some authors have argued that intercorrelations between these aggression measures demonstrate conceptual utility (Anderson, Lindsay, & Bushman, 1999) although more recent reanalysis of this work has been less sanguine (Mitchell, 2012). Other scholars have indicated that these aggression measures are often used in an unstandardized way, with even the same labs sometimes extracting aggression differently between studies from a single measure (Ferguson, 2013) and that such unstandardized aggression measures can cause spurious effect sizes (Elson, Mohseni, Breuer, Scharkow, & Quandt, 2014).

These issues of validity aside, results for media violence effects in the laboratory have been mixed (Savage, 2008). For both movies and videogame violence, some studies find evidence for effects on increased aggression (e.g., Ivory & Kaestle, 2013; Turner & Berkowitz, 1972), null effects (Ramos, Ferguson, Frailing, & Romero-Ramirez, 2013; Tear & Nielson, 2013) or even reduce aggression (Feshbach, 1961; Mueller, Donnerstein, & Hallam, 1983; Shibuya, Sakamoto, Ihori, & Yukawa, 2008; Valadez & Ferguson, 2012). Overall, making clear, declarative statements from this body of work is difficult. Other research has indicated the laboratory exposures to violent content do not match well with real-life exposure. For instance, Krahé et al. (2011) found evidence for small associations between exposure to media violence in the laboratory and mild aggression tasks, but real-life exposure did not predict aggression in the laboratory.

The degree to which laboratory studies faithfully capture the media experience is also debatable. Many such studies provide exposure to only brief clips of media, rather than full narrative experiences, in which violence exposure is outside of a narrative context. The resultant aggressive behaviors are also outside a real-world context, in which the aggression appears to be sanctioned by the researchers themselves who provide the opportunity for aggression. The close pairing of clips of media violence with sanctioned aggression asks may also set up demand characteristics that may explain the small effects typically seen from such studies. The degree to which such studies, regardless of their inconsistent results, can be generalized to societal aggression remains debatable (Savage, 2008).

Societal violence

No small part of the debate on media effects has focused on concerns that the introduction of violent media into society in the 20th century may have precipitated increasing violence in society. Scholarly arguments directly linking media violence exposure to increases in societal violence began in the era of the 1972 U.S. Surgeon General's Report on television violence, became particularly prevalent during the 1980s (e.g., Centerwall, 1989) and continued into following decades (e.g., Bushman & Anderson, 2001). Such arguments were arguably sustained in part by increases in societal violent crime beginning in the 1960s and remaining through 1993 (Federal Bureau of Investigation, 1951–2012). This crime wave arguably gave a sense of urgency to media effects theories.

To illustrate more closely how such societal data has been used, whether correctly or incorrectly, to support purported links between media and societal violence, the scholarship of Centerwall (1989) may be considered. Centerwall's analysis compared homicide rates in the United States and Canada with those in South Africa, where television was introduced in 1975. Centerwall concluded that violence rates in South Africa rose following the introduction of television, mirroring the alleged effect in the United States. Canadian violence rates also appeared to rise following the introduction of television although not nearly as high. A further study in Canada claimed that aggression rates among children rose in several small towns following the introduction of television (Williams & Handford, 1986).

A follow-up analysis on data from four other countries; France, Germany, Italy, and Japan noted no relationship between the introduction of television and violent crime rates in those countries (Zimring & Hawkins, 1997). One naturalistic study examined aggression in school children after television was introduced to the isolated island of St. Helena in the South Atlantic (Charlton, Gunter, & Coles, 1998). Researchers examined the playground behavior of children for aggressive behaviors before television was introduced and for several years afterward. Results indicated that the introduction of television had no effect on childhood aggression.

The present research

Although much of the research on media violence concerns itself with relatively minor acts of aggression or competitiveness that arguably are not of societal concern (see Brown v EMA, 2011) most debates among politicians and the general public focus on the influence of violent media on societal violence. Examining such associations can help document whether media violence rates are predictive of or associated with fluctuations in societal violence rates. Although correlational by nature, the existence of co-occurring patterns would lend credence to theories linking media and societal violence, whereas discordant patterns would constitute a challenge to such theories, at least on the level of societal violence. Although many factors influence societal violence and small influence of media may be subsumed under larger societal influence, the absence of a correlation would argue that, at very least, other factors are primary compared to media in the production of societal violence.

Debates about media violence ultimately focus on macrolevel effects, whether media violence contributes to societal violence, yet much of the evidence is focused on microlevel individual studies with controversial measures of minor aggression. This is a phenomenon Farley (2012) has characterized as attempting to answer "big V" questions using "little v" research. By actually examining the "big V" outcomes related to societal violence, this can provide perspective of the impact of media on macrolevel variables. Such a study is a large-scale macrolevel correlational study. However, macrolevel variables have their weaknesses. Media exposure is not recorded at the macrolevel and must be estimated through consumption rates. Such estimates typically reflect audience preferences at given points in time. Thus, they one important piece of a puzzle about media effects that should be considered in tandem.

An example regarding the importance of macrolevel variables comes from the Cultural Indicators project that focused on the collection of aggregate data on television content coupled with a concurrent temporal assessment of viewer attitudes, beliefs, and norms (Gerbner & Gross, 1976). This approached demonstrate a method for examining macrolevel trends in both patterns of television programming and changes in societal beliefs in order to examine for patterns in these two. The Cultural Indicators project ultimately compiled data on over 3,000 shows and explored relationships between content in these shows and societal beliefs (Signorielli, Gerbner, & Morgan, 1995). Data from the Cultural Indicators project was used to make inferences regarding the potential impact of television programming on issues related to fear of crime, alienation and insecurity, and other aspects of social reality. The Cultural Indicators project approach parallels considering macrolevel variables related to media consumption and crime for the issue of media violence effects.

Some evidence has suggested that movie violence has increased over several previous decades (Shipley & Cavender, 2001), although long-term trends remain yet to be examined. This article seeks to address this gap in two studies, one examining movie violence and societal violence trends across the majority of the 20th century, the second examining videogame violence and youth violence trends across the previous 2 decades.

Study 1

In the first study, associative relationships between movie violence and homicide rates in the United States across the 20th century were examined.

Methods

Movie violence

In order to examine movie violence trends across the 20th century, top-grossing movies were selected from every fifth year starting with 1920 and ending 2005. Five-year intervals were used as reviewing top-grossing movies from every year inclusive would have involved thousands of person-hours and because available research suggests that violence rates in media typically do not change dramatically

across intervals of several years (Smith et al., 1998). As indicated through content analysis from the National Television Violence Study, violent content is relatively stable across small units of time spanning several years (see also Signorielli, 2003). For each year, the top five grossing movies were selected for rating. If a movie was not available due to being out of print, the next highest-grossing movie was selected in its stead. High-grossing movies were selected as being most likely representative of the general public's diet of movie violence, given the wide viewership of these movies. Five exemplars were included for each year to get a general rating of movie violence for that year that would be less likely to be spurious due to a single, particularly violent movie. A total of 90 films were included in the current analysis. Seven films (*Over the Hill*, *His People*, *The Plastic Age*, *Pollyanna*, *The Rogue Song*, *The Golem*, *East Lynne*), all from 1920–1930, were initially identified for inclusion but proved difficult to locate and were replaced with films from the same or adjacent year (*Mata Hari*, *Seven Chances*, *The Lost World*, *Phantom of the Opera*, *Last of the Mohicans*, *Within Our Gates*, *The Kid*). A full list of films included in the analysis is available upon request.

Each movie was rated for violent content using an interval rating approach. Trained raters viewed each movie and recorded at each 1-min interval whether any violent acts had occurred during the previous minute. Interval rating was used due to difficulty in interpreting strict count-based rating. For instance, a movie might include a brief war scene with hundreds of simultaneous acts of violence in a short period, yet be relatively nonviolent otherwise. It did not appear that such a movie should be considered more violent due to a strict count than a movie that included individual acts of violence throughout. Violence was defined for the purpose of ratings as "Any act (e.g., hitting, kicking, shoving, slapping, shooting, stabbing) causing intentional harm, injury or death, including war scenes, torture, rape, strangulation, or assault." Raters were trained to include comedic violence was well as graphic violence and also violence toward nonhuman animals or other characters, particularly given the popularity of some animated films, as well as human-on-human violence. A violence quotient was calculated by dividing the number of minutes in which a violent act occurred by the total number of minutes in the movie.

Graphicness of the violence was also rated for each movie. This consisted of six likert-scale questions regarding the degree to which the movie had, overall, depicted (a) visible blood or gore, (b) depicted maiming or decapitation, (c) displayed internal organs or body parts in the context of violence, (d) showed other graphic wounds, (e) depicted victims of violence in visible pain or (f) included scenes or rape or sexual abuse. A summed score of these items constituted graphic violence.

To calculate interrater reliability, a subset (59%) of the movies was independently rated by two raters. Interrater reliability was calculated using the Krippendorff formula (Hayes & Krippendorff, 2007). Interrater reliability was high at $r_k = .80$ for movie violence frequency and .85 for graphicness. Bootstrapping with 1,000 samples revealed a 95% confidence interval of .58 to .97 for movie violence and .77 to .91 for graphic violence. Assignment of raters to movies was random and was evenly distributed among four raters. It was intended that at least half (50%) of movies

would be rated by two raters to establish interrater reliability and the current analysis exceed this slightly.

Homicide rates

Homicide (specifically murder and nonnegligent manslaughter) rates were chosen as the outcome indices in the perception that, among violent crimes, these would be least likely to shift due to definitional changes or enforcement changes that could introduce history confounds over large spans of time (LaFree, 2005; O'Brien, 2003). Homicide rates were obtained from Uniform Crime Reports data (Federal Bureau of Investigation, 1951–2012; United States Department of Justice, 2005, 2006, 2009a,).[1]

Median household income

Median household income (MHI) was considered as a control variable for the dates available. The U.S. Census Bureau (2013) began keeping and tracking such data, inflation adjusted, beginning in the late 1960s. Thus, data was available for the years 1970 and beyond for this study.

Policing

At the request of the current investigator the U.S. Department of Justice compiled figures on the number of police officers employed each year beginning in 1970 (Carey, personal communication, 2007). The number of police officers employed as reported to the U.S. Department of Justice by police departments, was divided by the total U.S. population in order to adjust for population increases. This ratio remained stable between .17 and .19 through the 1970s and 1980s and began to increase slightly between .20 and .21 beginning in the 1990s and 2000s. Like MHI, this variable was used as a control variable for later years (1970 and beyond) for which data was available.

Population density

Population density data was obtained from the U.S. Census Bureau (2002, 2010a, 2010b). Population density is reported for each 10-year block. Population density for years ending in "5" (e.g., 1945) was estimated using the average of the values reported for "0" years reported before and after (e.g., the average of population density reported for 1940 and 1950).

Youth population

The proportion of youth under the age of 24 was also included as a control variable. These data was also obtained from the U.S. Census Bureau from the sources identified above. Data on years ending in "5" were also estimated using the same procedure as described for population density.

Real gross domestic produce per capita (GDP)

A final control variable was the real gross domestic product of the United States, adjusted for inflation and population. This is valuable as one economic indicator and these data are available from the Bureau of Labor Statistics (2012) beginning for 1960.

Statistical analyses

Main statistical analyses consisted of bivariate correlations between movie violence and graphicness levels and societal homicide rates. Partial correlations were also calculated with MHI, policing, population density, youth population and real GDP as control variables. Time series analysis will also be examined to analyze trends with autocorrelations in the series removed. Given the relatively low number of years involved, interpretation of correlation coefficients focused on effect size (as indicated by the *r* value) rather than statistical significance (Cohen, 1988).

Control variables selected above were selected for their theoretical links with crime trends. Explanations for crime trends continue to be debated among criminologists, although leading theories involve variables such as policing (Schneider, Pilon, Horrobin, & Sideris, 2000) or economic and demographic changes over time (Bukenya, 2005). Thus, controlling for related variables may help to identify history effects that may have created spurious correlations regarding movie violence and crime trends.

Results

Examining trends in movie violence suggests that frequency of violence in movies has followed a rough U-pattern across the 20th century. Violence in movies was quite common in the 1920s, rapidly diminishing, only to return in the latter part of the 20th century, beginning in the 1960s, but particularly in the 1980s. This diminishing of violence in movies appears to correspond to the Motion Picture Production Code or Hays Code of 1930 that was a code of voluntary censorship by the movie industry designed to offset criticisms of violence and other objectionable content in movies. By contrast, graphicness of violent content shows a more clearly increasing pattern across the 20th century, particularly beginning in the 1950s (Figure 1).

Bivariate correlations suggest a moderate relationship between frequency of movie violence and homicide rates $r = .33$ ($df = 17$, $p = .19$), although the relationship between graphic violence and homicide rates was small $r = .13$ ($df = 17$, $p = .60$). Controlling for MHI, proportion of youth and population density did not reduce these correlations. Correlations between violence frequency and homicide remained at $r = .35$, .42 and .37 respectively (*p*s ranged .09 to .45), for these variables controlled, whereas correlations between movie graphicness and homicide were at $r = -.10$, .38 and .30 respectively (*p*s ranged .13 to .83), with these variables controlled. The relationship between movie graphicness and homicide demonstrated greater variability depending upon which control variables were employed, than did violence frequency. However, controlling for policing and real GDP did. With policing controlled, correlations between media violence frequency and societal homicide rates dropped to $r = .06$ ($p = .89$) and $r = -.22$ ($p = .64$) for graphic violence. Controlling for real GDP dropped the correlation between movie violence and homicide and for graphic violence and homicide both to $r = -.04$.

Time series analysis was conducted using ARIMA models in SPSS. Autocorrelations in the trends were removed using the Box-Jenkins approach. Using this approach

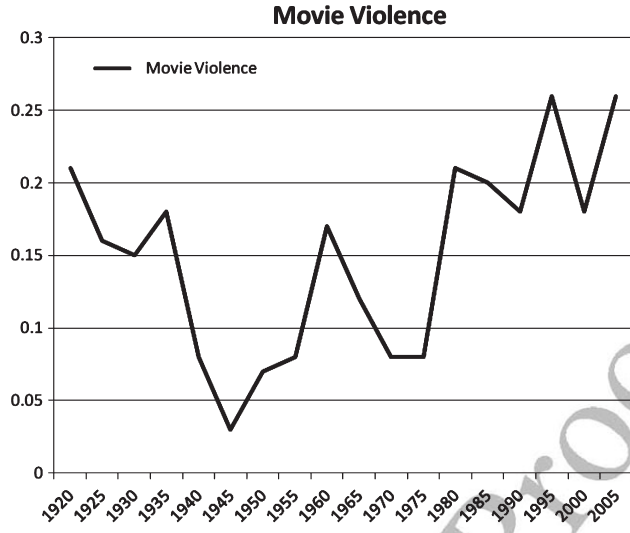

Figure 1 Trends in movie violence across the 20th century.

creates residuals that are free of autocorrelations (Warner, 1998). The procedure can help in the removal of spurious trends. However, time series analysis is best run with observations greater than 50 and the current observations are fewer than these so results should be interpreted with caution. With the model for the prediction of movie violence frequency and graphicness considered as predictors of homicide, and controlling for autocorrelations, the effect size for the relationship between movie violence and homicide dropped to $r = .18$ and for graphicness $r = .08$. After two autoregressive parameters were added to the model Ljung-Box Q tests for white noise residuals revealed that when homicide was predicted movie violence (Ljung-Box Q at lag $10 = 11.52$, $p = .31$) or graphic violence (Ljung-Box Q at lag $10 = 10.23$, $p = .42$) there were nonsignificant autocorrelations among the residuals, with effect sizes returning to $r = .30$ and .13 respectively. Thus, time series analyses did not differ significantly from the basic correlations.

The relationship between movie violence and societal homicide, also appears to have been driven mainly by increases in both phenomena during the mid-20th century. When only the years from 1970 on are considered, the relationship reverses in trend with homicide rates correlated $r = -.28$ ($df = 8$, $p = .50$) with frequency of movie violence and a strong $r = -.61$ ($df = 17$, $p = .11$) with movie graphicness. For the years prior to 1940, movie violence demonstrated an almost perfect inverse relationship with societal violence with the two variables correlated $r = -.98$. Figure 2 presents the long-term trends for frequency of movie violence and homicides across the 20th century. As can be seen, these two phenomena were divergent in the 1920s, then largely tracked each other through the midcentury before diverging once again approximately around 1990 with this divergence continuing into the 21st century.

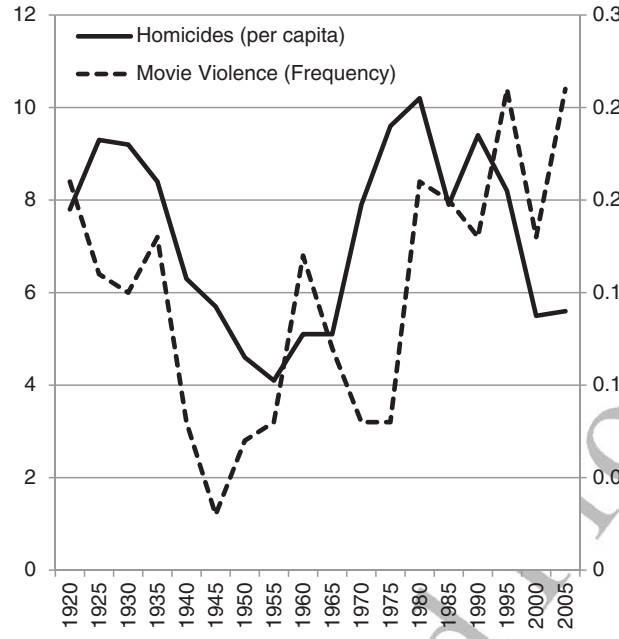

Figure 2 Trends in movie violence and homicide (murder and nonnegligent manslaughter) across the 20th century.

Discussion

Graphic elements of movie violence have been on a steady liberalizing trend, particularly in the latter half of the 20th century. Interestingly, this trend toward more graphic violent content is not correlated with societal violence. The frequency of violence in movies has demonstrated a U-curve, with early movies from the 1920s being fairly violent before the imposition of the self-censorship of the Hays Code in 1930 resulting in a significant decrease in movie violence. Movie violence then began to increase once again in the latter 20th century. This is consistent with a previous analysis by Shipley and Cavender (2001).

Although graphic violence did not correlate with societal violence, frequency of violence in movies did correlate with societal violence in the form of homicides. This correlation was fairly small and driven mainly by concordance during the mid-20th century. By the latter 20th century this concordance trend had reversed itself with movie violence associated with *reduced* societal violence in the form of homicides. Further, the correlation between movie and societal violence was reduced when policing or real GDP were controlled.

Taken together these data suggest that perceived correlations between movie and societal violence were associated with a chance concordance during the mid-20th century. Given that these phenomena were not in concordance in either the early or latter 20th century, it appears that efforts to establish causal connections between movie and societal violence based on a select set of decades were an ecological fallacy.

Study 2

In the first study, frequency of movie violence correlated with societal violence only in the mid-20th century, not the early or latter portions of the century. Although this would initially question the notion that societal and media violence rates are meaningfully linked, it could be reasonably argued that some *other* phenomena may be masking relationships between media and societal violence rates. For instance, the United States has seen a considerable increase in per capita incarceration in recent decades (United States Department of Justice, 2009b). It could be argued that media violence does have an effect on societal violence, but that by incarcerating such a high percentage of antisocial individuals, societal violence is driven back down once again. This argument has flaws. For instance, such an argument does not explain the discrepancy between media and societal violence rates in the 1920s and 1930s. Nor does it explain the observation that other countries (e.g., The Netherlands, Japan, South Korea) with high violent media consumption and relatively low incarceration rates are among the least violent (Sternheimer, 2013).

One way to examine this issue is to explore whether youth violence, typically occurring at ages prior to incarceration, correlated with the introduction of new media. Youth are often conceptualized as being particularly vulnerable to media effects, relative to older populations. Youth are also most likely to consume new media such as videogames (Aarsand, 2007). Violence rates among youth are consistent across youth age categories (childstats.gov., 2013) which is one means of addressing the potential contaminating effects of incarceration rates. Indeed, previous analyses have specifically ruled out incapacitation due to incarceration as a factor in declining youth violence rates (Stahlkopf, Males, & Macallair, 2010). If media violence is a precursor to societal violence the introduction of violent videogames in the United States should be expected to precipitate increased youth violence rates, particularly given that other forms of media such as television and movies have not abated in regard to violence levels. This was effectively the argument used during previous decades of television violence research (e.g., Centerwall, 1989). Thus, this second study is designed to test the hypothesis that societal consumption of violent videogames is associated with societal rates of youth violence.

Methods

Videogame violence

Data on consumption of videogames in terms of units sold is available from The Entertainment Software Administration (2013) which is a trade group representing the videogame industry. Their data are provided through the NPD group, an independent provider of consumer and retail information. Videogames data in terms of units sold was used in order to control for inflation influences on dollar sales figures. These data included figures for sales of physical discs and downloads, which prevents underestimation of videogame sales as delivery of games moves increasingly away from "brick and mortar" outlets. However, it should be noted that these figures do

not include games provided through other media such as cell phones, social media, or noncommercial games provided online.

General videogame sales figures in units sold do not distinguish between violent and nonviolent games. To get an estimate of violent game consumption specifically, top five selling videogames for each year were obtained from the Internet Movie Database (imdb.com) which tracks videogames and other media in addition to movies. The IMDB includes a wide array of information including sales data for movies and videogames. The IMDB includes wide-release commercial videogames including those released on nontraditional platforms such as apps, but does not necessarily include all noncommercial or serious videogames. However, videogames likely to see most widespread use are included in the IMDB data. These popular games were rated on a scale of 1 to 5 for violent content in accordance with the rating provided to them by the Entertainment Software Ratings Board (ESRB) which rates games as EC for early childhood, E for Everyone, E10+ for ages 10 and over, T for Teen, M for Mature (there were no games in the current sample rated in the higher AO category). The use of ESRB ratings as an estimate of violent content has been found to be one of the most reliable and valid estimates of violent content in past research (Kutner & Olson, 2008). Videogame violence consumption each year was created by summing the ESRB ratings for five most popular videogames and multiplying this number by the total units of videogames sold. This product estimated societal exposure to violent videogames by weighting the overall consumption of videogames in units sold by the violent content of the most popular games.

This approach differs somewhat from the content-analysis approach of the first study. With movies a content-analysis approach was necessary as no reliable, standardized approach for rating movies existed until the MPAA system of the 1960s. With videogames the ratings-based approach has been found to be reliable and valid, and was present for all included years of this study. As such, a ratings-based system was employed.

Youth violence

Official government per capita rates of youth (12–17) violence were obtained from the government website childstats.org (2013) which maintains statistical data related to children's behavioral and medical health and tracks these data over time. Data on youth violence for the childstats.org site come from the National Crime Victimization Survey. These rates include reported juvenile offenders of serious violent crimes as reported by victims, as well as perpetrator of homicides as reported by police departments in the age range of 12–17 years. Crimes involved include homicides, rape, aggravated assault, and robbery (stealing under threat or use of violence).

Statistical analyses

Simple bivariate correlations were assessed between videogame violence exposure in society and youth violence. This study includes the years from 1996 through 2011, the only years in which both sets of data were available.

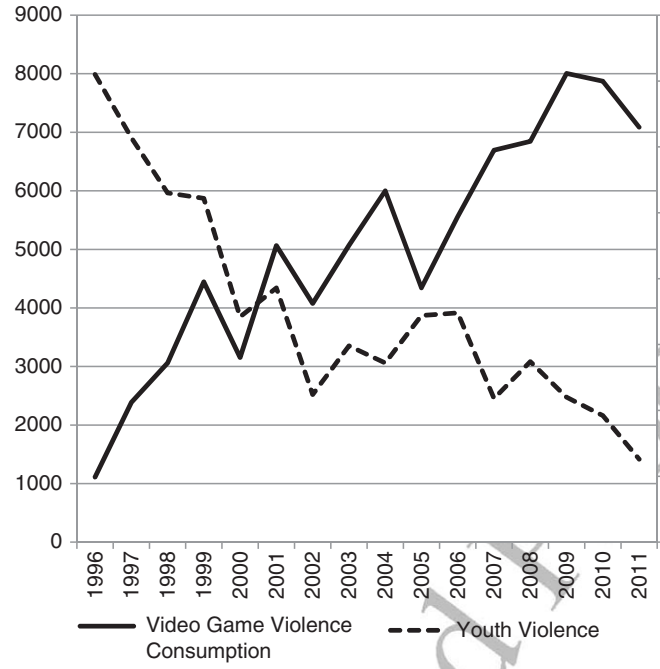

Figure 3 Societal videogame violence consumption and societal youth violence, 1996–2011.

Results

Violent videogames were among the most popular in most years. Summed scores of the five videogames popular each year had a potential range of 5 (if all popular games were children's games) through 25 (if all popular games were rated M for mature). The mean sum score across years was 21.4 ($SD = 2.99$), indicating a high proportion of games rated T for teen or M for Mature, most of which contain significant violence. Of the 16 years considered in this analysis, all but 4 had average sum scores of 20 or above (again, equivalent to rating T or above). Eight of the 16 were summed at 23 or above, indicating a high proportion of M for Mature games.

The trend lines between videogame violence in society and societal youth violence are presented in Figure 3. As can be seen, videogame violence consumption in society is *inversely* related to societal youth violence. The bivariate correlation between these two phenomena is $r = -.85$ ($df = 15$, $p = .001$). Regarding time series analysis Ljung-Box Q tests for white noise residuals revealed that when this youth violence was predicted from videogame sales (Ljung-Box Q at lag 10 = 10.24 , $p = .42$) there were nonsignificant autocorrelations among the residuals.

Discussion

Data comparing videogame violence consumption to youth violence in society demonstrates an inverse relationship, at least for the years 1996 through 2011 when both sets of data were available. This relationship appears to be remarkably strong.

However, it is important to point out that this is not an indication of causality. Indeed, as seen in Study 1, media trends and societal trends can track for a time, in one direction or another, but often reverse. In this study, data were available for only a limited number of years and it is likely the trend would vanish or reverse with a longer time span with which to work.

However, these data conflict with the view that the introduction of videogame violence in society should have precipitated greater or at least a sustained high level of youth violence. Instead, youth violence dropped precipitously, despite maintaining very high levels of media violence in society with the introduction of videogames. These data are particularly important given that, unlike for the homicide data in Study 1, this cannot be explained through an incapacitation effect due to incarceration rates (Stahlkopf et al., 2010). Evidence from societal data does not support claims of dramatic videogame violence effects on violence among youth.

General discussion

The issue of whether media violence contributes to societal violence has been a contentious one across recent decades. Numerous experimental, correlational, and longitudinal studies have failed to provide a consistent answer one way or another regarding this question (Adachi & Willoughby, 2012; Ivory, 2013). In the past some scholars have argued that increases in media violence may have explained societal violence trends (e.g., Bushman & Anderson, 2001; Centerwall, 1989). However, relatively little data has been produced to examine this claim.

Two studies examined the impact of movie (Study 1) and videogame (Study 2) violence on societal violence related to homicides and youth violence respectively. Neither study provided evidence for the belief that media violence and societal violence are meaningfully correlated. Study 1, in particular, demonstrated how such beliefs may come into being. Movie violence displayed differing patterns of correlation depending upon the time frame examined. Both early and late in the 20th century, movie violence was associated with decreased societal violence. However, during the mid-20th century movie violence and societal violence trends appeared to coincide. So long as scholars and policy makers took a relatively short view, examining only midcentury figures, it is understandable that many considered movie violence and societal homicides to be correlated. However, a longer view, including both earlier and later decades reveal this to have been a temporary trend, and thus an ecological fallacy.

In Study 2, youth violence rates were considered given that trends in youth violence cannot be explained as due to incapacitation incarceration effects (Stahlkopf et al., 2010). Results from Study 2 lent further credence to skepticism regarding an association between societal violence and media violence. In this case, videogame violence consumption rates were strongly associated with *reduced* youth violence rates that cannot be explained as an incapacitation effect. However, particularly given the comparatively short time frame involved, this negative correlation between videogame violence and youth violence is just as likely to be an ecological fallacy as

were purported links between television and movie violence in the mid-20th century and increasing violence rates in society at that time.

Theoretical implications

Results from the two studies suggest that socialization models of media violence may be inadequate to our understanding of the interaction between media and consumer behavior at least in regard to serious violence. Indeed for some time, scholars have argued that such models may be inadequate (Freedman, 1984; Gauntlett, 2005). Current "hypodermic needle" theories of mass media effects on behavior ultimately may imply simplistic modeling of behavior, focused too heavily on the development of automatic cognitive scripts (Ferguson & Dyck, 2012). Such theoretical models may, effectively, remove the user from the media experience except as a passive "victim" of a powerful, influential media. Although some scholars claim that empirical evidence supporting hypodermic needle approaches is considerable (Gentile, Saleem, & Anderson, 2007), others have argued that such evidence is actually weak and the time has come to reconsider communication theory as it applies to media effects (Lang, 2013).

By contrast, several models have been proposed to suggest that the interaction between media and consumers may be motivationally driven rather than content-driven, with idiosyncratic effects seen between consumers depending upon their motivations (e.g., Przybylski, Rigby, & Ryan, 2010; Sherry, Lucas, Greenberg, & Lachlan, 2006). These theories such as Uses and Gratifications (Sherry et al., 2006) and Self-Determination Theory (Przybylski et al., 2010) posit media as fulfilling pre-existing motivational structures. Thus, a particular form of media may have very different influences depending more on what individual consumers seek to achieve rather than on content specifically. Indeed, some early work has suggested exactly this, that individual behavioral outcomes due to media exposure can be quite idiosyncratic and unpredictable (e.g., Unsworth, Devilly, & Ward, 2007).

In effect, understanding the absence of discernible effects for mass media consumption on societal outcomes may not necessitate believing that media has no significant impact on consumers. Rather, adoption of a limited effects model in which user motivations rather than content drive media experiences may help us understand how media can have influences, yet those influences result in only limited aggregate net impact in society. User motivations determine what users watch and what influences they hope to experience from media. Thus content, even objectionable content such as graphic violence, may have very different influences from one user to another. This was, for instance, the results of Unsworth et al. (2007) who found that videogame violence calmed some youth, agitated others, and had little influence at all on the majority. Although a limited effects approach, based on Uses and Gratifications or Self-Determination Theory may be less prone to dramatic headlines linking media violence to societal violence, adoption of such theoretical models may lead to a more sophisticated understanding of the interaction between consumers and mass media than has been possible with moralistic content-based approaches.

From a limited effects approach we can begin to see that the media experience would be far more contextual than assumed under hypodermic needle approaches that have traditionally dominated the field. From such an experience the media experience can be formulated as a multistep process. The initial step in such a process would involve user motivations, and personality factors that shape media selection. Prioritizing the media user as a shaper of their own media experience is central to such an approach. Media exposure is, thus, a selection based experience, individually tailored by users based on their motivations. Based on such motivations, individual users can be expected to process media differently as well. That is to say, the influence a particular form of media may have on individual users may differ widely from one user to the next based on their motivations and how they process and react to the media in question. This is, again, quite different in perspective from hypodermic needle approaches that assume fairly uniform outcomes, differing only in magnitude from one user to the next. Further, it can be anticipated that users will understand that the media experience differs from real-life and it should not be assumed that ready transfer occurs from media to real-life behavior (Bennerstedt, Ivarsson, & Linderoth, 2012). Lastly, under such an approach, given that behavioral outcomes occur in the real-world, it would be anticipated that real-world controls remain primary in shaping even behavior that may be influenced by media. That is to say, it should not be assumed that the reward structures of the media experience can override reward and punishment structures from real-life.

Understanding motivational structures for media use can be instrumental in understanding why users come to different forms of media for different purposes. For instance, Weaver, Zelenkauskaite, and Samson (2012) found that Youtube video content is less violent than traditional television, even for television clips uploaded to Youtube. This may be because users associate social media such as Youtube with a different type of experience than traditional media and are drawn to outlets like Youtube less to be entertained through traditional narrative format, but through shorter, amusing clips, through information, or for social connection. In this sense, a different set of motivations is instrumental in shaping two areas of media into two very different landscapes.

Other theoretical approaches such as Routine Activities Theory (Cohen & Felson, 1980) suggest that, whatever the impact of media violence on mood or motivation, merely engaging in the behavior of watching violent movies or playing violent videogames occupies time and, thus, removes individuals from opportunities to offend, thus reducing criminal violence. For example, several studies have suggested that the release of violent movies (Dahl & DellaVigna, 2009) and videogames (Markey, Markey, & French, in press) are associated with reductions in societal violence rather than increases, lending support to Routine Activities Theory. Future studies may wish to consider the ways in which new technologies, even with offensive content, may provide routine activities or opportunities for friendship and socialization that may take away from opportunities for antisocial behavior.

These results also highlight the risks of overextending the results from a particular methodology, when outcomes from other methodologies may produce conflicting results. In this case, the results from laboratory studies of aggression have been arguably overextended into questions about societal violence (Farley, 2012) in many cases ignoring inconsistencies in this set of data to do so. Even if we were to assume that laboratory studies of aggression produced consistent results, the difficulty in establishing links between societal media consumption and societal violence indicate that far greater caution need be applied in the generalization of laboratory phenomena to real-world behavior. This is, of course, true for all areas of research. Although the errors of the media violence debate highlight the need for greater caution throughout media and communication studies, it is not unreasonable to suspect that the overextension of research findings beyond the limits of the data are more the norm than the exception. All fields of communication and psychology would do well to adopt a culture of greater conservatism and caution in communicating research findings. The alternative is damage to scientific credibility of our fields (Hall, Day, & Hall, 2011).

Policy implications

As a practical issue, within the United States, the *Brown v. EMA* decision of 2011, wherein the majority decision found both that violent media (specifically videogames) enjoyed First Amendment protections and that research on the "harm" of such media was not persuasive, has made regulation of violent media unlikely. Arguably, a more important question is whether attention to the media violence debate can actually be damaging in regard to society's attention to more pressing issues influencing violence such as poverty or mental health. Indeed, following the Sandy Hook shooting of 2012, the National Rifle Association clearly attempted to draw links between media violence and societal violence, arguably in an attempt to distract society from debates about gun control. As indicated earlier, such efforts are likely abetted, if unintentionally, by problematic policy statements by groups such as the American Psychological Association drawing links between media and societal violence despite much evidence to the contrary.

As a matter of policy, consistent with the statement by the Consortium of Scholars (2013) it may be best for such professional organizations to retire their policy statements on media violence as such statements tend to be misleading and may cause more harm than good. Certainly, such statements risk damaging the credibility of social science (Hall et al., 2011), but they may also do damage to the extent they distract society from other pressing issues. Indeed, some scholars have argued that politicians and groups such as the National Rifle Association specifically use moral panics over media or youth to focus attention onto culture war issues rather than intractable social problems requiring great political capital and investment to solve (Males, 2013). It is difficult to fully explore the inside motivations for professional organizations to release such policy statements, particularly when media-based policy statements released by professional organizations have so often been revealed to

be flawed (e.g., Ferguson, 2013; Magid, 2011). It could be that such policy statements are part of a larger system of politics and social narratives that do not well-reflect actual science. For instance, it has been revealed that past policy statements were typically developed by specially selected researchers heavily invested in antimedia views, with no dissenting voices (Ferguson, 2013). Such scholars typically reviewed their own work and declared such work beyond further debate. Such review processes, which are more the norm than the exception, should not be mistaken for careful and objective scholarly reviews. Professional organizations may arguably do well to take a wider view and consider the larger negative impact such policy statements can have, both on the field (Hall et al., 2011) but also on society to the extent such policy statement fuel moral panics (Muschert, 2007) and inadvertently act as impediments for progress in other areas (Males, 2013).

Regarding news coverage of media violence debates, a recent article documented that news coverage of media violence has become more skeptical in recent years (Martins et al., 2013). The authors conclude that scholars should encourage journalists to make more conclusive statements linking media violence to societal violence. Other scholars (e.g., Gentile, 2013) have explicitly suggested that journalists should not speak to scholars who are skeptical of links between media and societal violence, thus appearing to endorse scientific censorship of scholars who disagree with their personal views. However, attempts to generalize laboratory studies of aggression to societal violence have been specifically rejected by other media scholars (e.g., Farley, 2012). Further, endorsement of scientific censorship views such as those espoused by Gentile (2013) and less strenuously implied by Martins et al. (2013) are arguably anathema to the foundational value of open inquiry and discourse that is critical to scientific progress. So long as the issue of media violence is being debated in the pages of leading journals such as *Journal of Communication* or *American Psychologist* journalists have reason to cover those debates fairly. Arguably, given that the results from the effects paradigm have been weak and inconsistent (Lang, 2013) it may be time for scholars to make less rather than more conclusive statements to news media regarding media effects on society.

Limitations and future directions

This study has several limitations that must be considered. First, all data are correlational in nature and causality cannot be inferred from such data. Indeed, that is arguably one of the conclusions of this study, the degree to which correlations between media and societal violence, whether positive or negative, can be ecological fallacies. A second issue with this study was that not all pieces of data such as law enforcement personnel or mean household income were available for all years. Similarly videogame consumption data are available only from the years 1996 and beyond. Thus, it was not always possible to consider the interaction between multiple societal-level variables that would have been desirable. More sophisticated designs incorporating multiple societal-level variables would be of great value. Given that aggregate data on media violence consumption are not available, this study used estimation procedures for

this exposure. Any such estimation procedure runs the risk of over or underidentifying exposure and results should be interpreted with caution. Finally, due to the small number of observations in these studies, results from the time series analyses should be regarded as preliminary.

This study sought to examine whether media violence and societal violence co-occur in a meaningful fashion that would lend credence to fears regarding media violence influences on society. By and large societal data do not appear to support this contention. Indeed, despite an explosion in the availability of mass media and liberalization of violent content in the same, we are living in what is likely the most peaceful epoch in human history (Pinker, 2011). Further, preliminary analyses suggest that nations with the highest level of violent media consumption are among the most nonviolent (Washington Post, 2012). It is difficult to say to what degree associations that scholars made between media and societal violence in published work may have contributed to the difficulty the field has sometimes had in accommodating newer research and societal data. However, it may be prudent for scholars, in the future, to be more cautious in making claims linking societal violence and media violence. Such claims, though having political appeal, may do more damage than good to both the field and society in the long run.

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Note

1 However, some scholars have indicated the early 20th century data may have undercounted some homicides and the adjusted estimates provided by Eckberg (1995) for these early dates are used.

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