Parental Desensitization to Gun Violence in PG-13 Movies

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abstract

OBJECTIVE: To assess effects of justified versus unjustified screen violence on parents' willingness to allow children to view films that contain extensive gun violence.

METHODS: A national US sample of 610 parents with at least 1 child between ages 6 and 17 was randomly assigned to view a series of four 90-second video clips from popular films depicting violent gun use under either justified or unjustified conditions. Graphic consequences were removed to mimic the violence common in PG-13 movies. Parents reported their perceived justification for the violence, their emotional reaction while viewing it, the minimum age they would consider appropriate for viewing the film, and whether they would allow their own child to view it. Predictors included experimental condition, viewing order, child age, and recent moviegoing. Growth curve modeling determined the effects of the predictors on both intercepts and slopes of viewing order.

RESULTS: Parents were less emotionally upset and more accepting of child viewing for justified than unjustified gun violence, with perceptions of justification better predictors of parental restriction than emotion. Nevertheless, with the exception of parents with extensive moviegoing habits, parents viewed justified violence as appropriate for adolescents starting at age 15, older than the PG-13 rating suggests.

CONCLUSIONS: Parents are less restrictive of child viewing of gun violence in PG-13 movies when it features characters whose weapon use is seen as justified. The apparent acceptance of rising gun violence in PG-13 movies may be partly attributable to the perception that the violence in those films is justified.

FREE

WHAT'S KNOWN ON THIS SUBJECT: Gun violence is increasingly popular in movies rated as acceptable for children over age 12, and previous research suggests that parents are becoming emotionally desensitized to such movies.

WHAT THIS STUDY ADDS: Parents are not emotionally desensitized to such gun violence but are more willing to allow children to view it when it is seen as justified. Nevertheless, parents view such films as more appropriate for children older than age 13.

ARTICLE

The earliest studies of children's responses to movies revealed that some movies can be disturbing to children.[1–3] Because parents may want to shield their children from such content, the Motion Picture Association of America (MPAA) provides ratings that inform parents about potentially upsetting content.[4] In particular, the PG-13 rating was introduced in 1984 in response to parents' concerns that the more global parental guidance (PG) warning lacked the ability to warn parents about content that could potentially disturb younger children.[2] Nevertheless, in recent years the PG-13 rating has been extended to films that were previously restricted to children older than 16 unless there was an adult in attendance[5] and now includes films with levels of gun violence that exceed what is present in the more restrictive R-rating category.[6,7]

Along with the increase in PG-13 violence, surveys also suggest that parents are becoming more accepting of violence in movies,[8] reflecting a form of desensitization to movie violence.[9] Given the long-standing evidence that heavy exposure to screen violence in children can lead to imitation,[10,11] increased parental acceptance of movie violence is cause for concern. One explanation for this desensitization is that these films typically omit the consequences of violence that might be upsetting to children, such as graphic displays of blood and suffering[12] that tend to receive R ratings.[7] As parents view more of these movies, they may become emotionally desensitized to the violence[9,13] and more accepting of its viewing by children.

Another potential mitigating feature of gun violence in popular movies is the perceived justification for the violence. Violence conducted to defeat enemies or for purposes of self-defense may be seen as more justified and acceptable than violence that is random or without

socially beneficial motives. This form of violence may be common in popular movies just as it has been on television[14] and may also be less emotionally upsetting than unjustified violence.[15] Thus, repeated exposure to justified gun violence in PG-13 films could lead to a form of normative desensitization in which the justified use of guns in movies leads to greater acceptance of its viewing by children.

We sought to distinguish between these 2 forms of desensitization. If emotional desensitization were responsible for increased acceptability of gun violence in PG-13 movies, one would expect repeated viewing of bloodless gun violence to reduce the emotional response to such content and hence lessen its restriction of viewing by children whether it is seen as justified. However, if normative desensitization is important, then repeated viewing of justified gun violence should lead to greater perceptions that such violence is justified and correspondingly greater acceptance of its viewing by children. Furthermore, evidence of either form of desensitization should also be reflected in parents' moviegoing practices. Parents who more frequently view recent movies should become desensitized to the violence in them.

To test these alternative explanations, we examined both emotional responses and perceptions of justification for gun violence as parents of children ages 6 to 17 viewed a sequence of either justified or unjustified gun violence scenes from popular movies. To mimic the violence in PG-13 movies, we removed the graphic and potentially upsetting consequences of gun violence (blood and suffering) from clips of unjustified violence taken from R-rated movies. We asked parents whether they would allow 1 of their children to view the movie and the age at which the movie

would be appropriate for viewing by children in general.

METHODS

Sample

As in a previous study,[9] we recruited the sample of parents from Research Now, a firm that maintains a large representative online panel of US adults primarily for consumer research purposes. Panel members who were parents or guardians of children between the ages of 6 and 17 were invited to participate in a study to evaluate movies for their appropriateness of viewing by children. The study was approved by the Institutional Review Board of the University of Pennsylvania.

Procedure

Parents indicated how many children they had in each of 3 age categories: 6 to 9, 10 to 12, and 13 to 17. If they had a child in >1 category, they were randomly assigned to 1 category, and if they had >1 child in that category, they were randomly assigned to respond to the survey only in regard to that specific child. Recruitment was structured to overrepresent parents with children in the 13 to 17 age range (40%), with proportional representation of the 2 other age groups.

Parents were assigned at random to view four 90-second movie clips that had been independently rated as containing either justified or relatively unjustified gun violence. Within each condition, participants were also randomly assigned to view 1 of 4 possible arrangements of the clips such that each appeared equally often in each viewing position. After viewing each clip and before moving on to the next 1, parents were asked the same series of questions regarding their emotion while viewing the clip, whether the major character shown in a still picture was justified in using violence, the appropriate age

for children to view the movie, and whether parents would allow their own child to view it (see Table 1). To screen out respondents who did not attend to the videos or survey items, we asked a question after 2 of the clips that could best be answered if it was viewed and a third question that assessed following survey instructions. Respondents who could not answer all 3 questions correctly were removed from further analysis. Those who took longer than 45 minutes to complete the study were also removed.

Videos

The clips were taken from popular films rated by the MPAA as either PG-13 or R to children starting at the age of 17 unless accompanied by an adult (Table 2). Preliminary research with a range of violent clips from popular movies identified 4 that were rated as having a major character who was justified versus 4 that were rated as relatively less justified for engaging in gun use. The movies from which the clips were taken were popular at the box office, had a balance of victims of either sex, and could be edited if necessary to remove graphic consequences of violence. On average, both sets of films were previously seen by parents in the sample at an equivalent rate (34%).

Analysis

We tested the alternative explanations by using growth curve modeling with the program Mplus.[16] Growth curve modeling is a multilevel analytic approach that permits the identification of effects on both the intercepts and slopes of individuals' responses as a function of viewing order.[17] We first tested the total effects of each predictor on the 4 dependent variables, each of which has a latent slope that could be related to its latent intercept. Often this relation is negative, reflecting either ceiling or floor

TABLE 1 Parental Assessments

Content	Items	Response Alternatives
Appropriate age	At what age do you think it would be ok for a child to see the movie from which this clip was taken?	Ages 6–18
Emotion	How did you feel while watching this clip? Agitated, disturbed, upset, sad?	1 (not at all) to 6 (very much); $\alpha = .91$
Previous viewing	Have you seen the movie (title) from which the clip was taken?	Yes versus no
Allow own child	How likely would you be to allow your child (age x) to see this movie in the future?	1 (extremely unlikely) to 7 (extremely likely)
Justification	Based on the video you just saw, do you think the character pictured was justified in what they did?	1 (not at all) to 5 (very much)
Movies seen	In the past 30 d, how many movies have you seen in a theater?	Free response

TABLE 2 Characteristics of Movies From Which Clips Were Taken

Title (Date of Release)	Rating	Sex of Victims	Seen Before, %
Justified			
Live Free or Die Hard (2007)	PG-13	Female	32
White House Down (2013)	PG-13	Male	34
Terminator Salvation (2009)	PG-13	Male	22
Taken (2008)	PG-13	Female	49
Unjustified			
Skyfall (2012)	PG-13	Female	45
Jack Reacher (2012)	PG-13	1 male, 4 female	32
Sicario (2015)	R	1 male, 1 female	15
Training Day (2001)	R	Male	44

Clips can be viewed at https://s3.amazonaws.com/mediaviolencestudy/APPC_Clips.mp4.

effects. The method also permits tests of mediation. The causal model in Fig 1 served as the theoretical framework for the separate analysis of each child viewing outcome. The model predicted that experimental condition would lead to a cascade of effects beginning with judgments of justification that would further affect negative emotion and each of the measures of child viewing. A critical test in the model was whether the intercept of justification predicts the slope of allowing child viewing directly or as mediated by emotion. Child age and parent moviegoing were also potential predictors. Correlations between the slopes could also be examined to identify relations at the individual level. Tests of model fit and the plausibility of the solution assessed the adequacy of the model's ability to explain the data. The direct and mediated pathways were tested by using bias-corrected bootstrapping with 95% confidence limits.[18] We also conducted multilevel regression to identify parents' judgments of appropriate ages for viewing of justified and unjustified violence.

RESULTS

Sample Characteristics

Table 3 contains percentages of various characteristics of the parents in the study by condition. Random assignment was confirmed in that there were no significant differences by condition. Approximately 15% of those who started the survey were dropped from the analysis in both conditions either because of failure to qualify or to answer the quality control questions correctly. The sample was similar to a previous study of parents,[9] with the exception that this sample had a higher proportion of fathers, and the age distribution of parents and/or guardians tended to be somewhat older than occurs in the US population.[19]
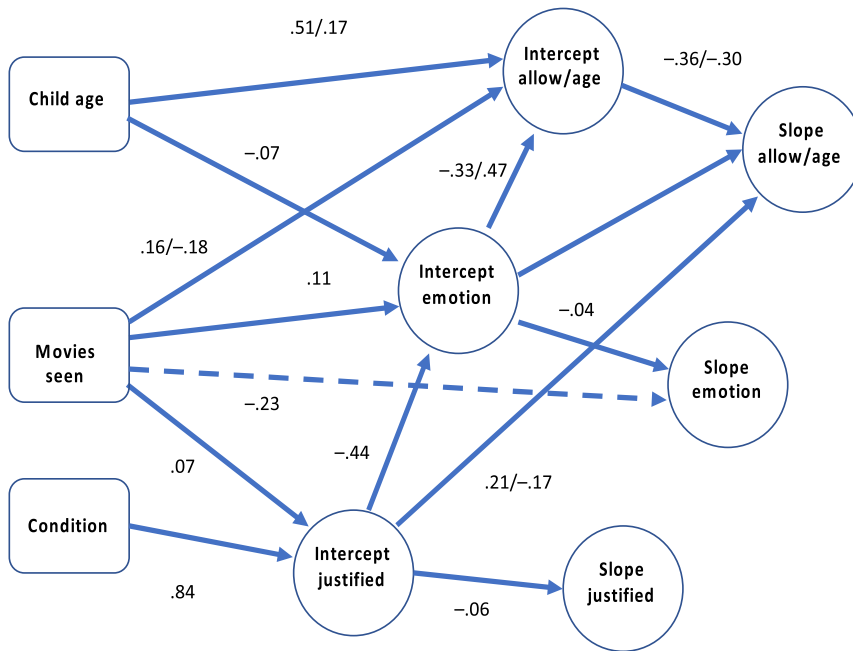
FIGURE 1
Structural model for tests of mediation. Dashed path was added to improve model fit. Model parameters are standardized coefficients ($P < .05$) with different values for the allow and age models, respectively. Model fits for allow and age models, respectively: CFI = 0.98, 0.98; TLI: 0.98, 0.98; RMSEA = 0.052, 0.054. CFI, comparative fit index; RMSEA, root mean squared error of approximation; TLI, Tucker-Lewis index.

Effects of Condition, Viewing Order, and Other Predictors

As seen in Fig 2 and Table 4, parents who viewed justified clips reported higher levels of justification for gun violence (B = 2.27 [95% confidence interval (CI) = 2.05 to 2.44]) and a steeper slope as viewing continued (B = 0.32 [95% CI = 0.003 to 1.27]). There was no effect of child age on justification. However, the number of movies seen was positively associated with justification (B = 0.06 [95% CI = 0.004 to 0.120]).

Parents reported less negative emotion in the justified condition (B = −1.26 [95% CI = −1.49 to −1.03]). However, negative emotion increased with successive viewing in both conditions. There was no consistent effect of child age. The number of movies seen was positively related to emotion (B = 0.08 [95% CI = 0.002 to 0.152]), a difference that declined as viewing continued (B = −0.04 [95% CI = −0.070 to −0.023]).

Parents were more willing to allow their own child to view justified violence (B = 0.44 [95% CI = 0.129 to 0.274]), and this effect increased over trials (B = 0.17 [95% CI = 0.010 to 0.476]). They were also more accepting the older their child was and the more movies seen.

Regarding appropriate age for viewing, parents were again more restrictive for unjustified than justified violence (B = −0.85 [95% CI = −1.22 to −0.481]), and this effect increased with successive viewing (B = −0.08 [95% CI = −0.163 to −0.007]). Child age was positively related to this outcome and negatively related to movies seen.

A mixed effects regression was used to estimate the age that parents thought appropriate for viewing each type of violence. We estimated this outcome for a family that was relatively unrestrictive (parent at age 40 who had previously seen the film and had an adolescent at age 14). Older parents who had not

seen the film provided even more restrictive ages. The model shown in Table 5 indicated that such a parent would judge the justified violence as appropriate for a child at age 15 (±0.082). The corresponding age for unjustified violence was slightly younger than 16 (15.94 ± 0.082). For frequent moviegoing parents, the appropriate age for unjustified violence approached 13.

Mediation Analyses

The structural model in Fig 1 provided excellent fits for both allowance and appropriate age. The standardized paths show that there was a strong effect of condition on the intercept of perceived justification, which in turn predicted the slopes of allowance and age, indicating less restriction as viewing continued. As seen in Table 6, justification mediated the relation between condition and slopes of both child viewing outcomes (0.130, −0.080). A test of the relation between emotion and the slopes of those outcomes was nonsignificant. However, the path from justification to emotion predicted less restriction on the intercepts of both outcomes (0.456, −0.752).

Although not shown in Fig 1, the correlation between the slopes of perceived justification and appropriate age was −0.287 (95% CI = −0.687 to −0.015). However, the correlation between the slope for justification and allowance was not significant (r = 0.171 [95% CI = −0.130 to 0.702]). None of the other slopes in the model were significantly correlated.

Although child age predicted allowance and age intercepts directly, its indirect effects through emotion were not significant.

Parents who watched more recent movies were less restrictive because of their tendency to view gun violence as more justified, which translated to less negative emotion

TABLE 3 Demographic Characteristics of Parents and/or Guardians by Condition

Characteristic	Condition			P of χ^2 Difference Test
	Unjustified (n = 303)	Justified (n = 307)	Total (N = 610)	
Parent sex				
Male	49.3	48.2	48.8	.78
Female	50.7	51.8	51.2	—
Parent age, y				
25–29	1.0	0.7	0.8	.99
30–39	25.8	26.7	26.3	—
40–49	45.4	44.6	45.0	—
50–59	21.9	21.8	21.8	—
60–76	6.0	6.2	6.1	—
Child age, y				
6–9	30.4	33.2	31.8	.21
10–12	28.7	22.5	25.6	—
13–17	40.9	44.3	42.6	—
Parent relation				
Mother	47.4	48.5	47.9	.89
Father	45.7	45.0	45.3	—
Other	6.9	6.5	6.8	—
Marital status				
Married	79.8	81.4	80.6	.46
Divorced	8.6	8.8	8.7	—
Single	5.0	6.5	5.7	—
Cohabiting	5.0	2.6	3.8	—
Other	1.6	0.7	1.2	—
Movies seen in past 30 d				
None	41.9	44.3	43.1	0.12
1	29.0	25.4	27.2	—
2	16.5	19.2	17.9	—
3–4	7.6	9.4	8.5	—
5 or more	5.0	1.6	3.3	—

—, not applicable.

(0.012, −0.020). However, the number of movies seen was also associated with greater negative emotion which transferred to more restriction (−0.044, 0.072). Effects on slopes were small as mediated by the inverse relation between intercepts and slopes. The unexpected relation between movies seen and the slope of emotion was unrelated to child viewing outcomes.

DISCUSSION

The results go beyond previous research in revealing that parents are more sensitive to the justification for gun violence that is common in popular PG-13 movies than to their emotional reaction when deciding whether a film is appropriate for child viewing. Parents who viewed gun violence that they considered to be justified were more likely to allow their own child to view such content and were less restrictive regarding the age at which it would be acceptable for children. In addition, successive viewing of justified gun violence was accompanied by increasing perceptions of justification for the violence and less restriction of child viewing.

Contrary to an emotional desensitization explanation, parents reported greater negative emotion with continued viewing of both justified and unjustified violence, and they were more accepting of justified violence with successive viewing of those movie segments, an effect that occurred apart from emotion. In total, the results suggest that parental desensitization to the gun violence in popular PG-13 movies is more the result of the normalization of this screen violence than of emotion reduction.

The importance of justification for violence was also evident in the finding that parents who regularly viewed popular movies perceived greater justification for the violence in the segments they were shown, an effect that would be expected if exposure to such films increases normalization of screen violence. At the same time, they reported experiencing more negative emotion at the outset. Although this effect declined as viewing continued, this reduction was unrelated to judgments about child viewing and argues against the importance of emotion as the major source of parental desensitization to bloodless film violence.

Although emotion was a direct predictor of average levels of judgments about child viewing, this effect was largely driven by differences in justification. This indicates that justification exerts some of its effects by influencing emotion. There were also effects of emotion that were independent of justification. In particular, some of the effects of movies seen were mediated exclusively by differences in emotion. Nevertheless, these effects were small.

Aside from the important role of perceived justification for screen violence, the violence in PG-13 movies is mostly free of graphic consequences. Thus, the violence in these films may not be as upsetting to parents and their children as the more graphic violence in R-rated movies. However, this raises the concern that movie depictions of harmful behavior that omit the consequences, such as of smoking[20] and alcohol[21] use, can increase imitation in adolescents. A recent study revealed that even brief exposure to gun use in a film led children ages 8 to 12 to play with and pull the trigger of a real gun.[22]
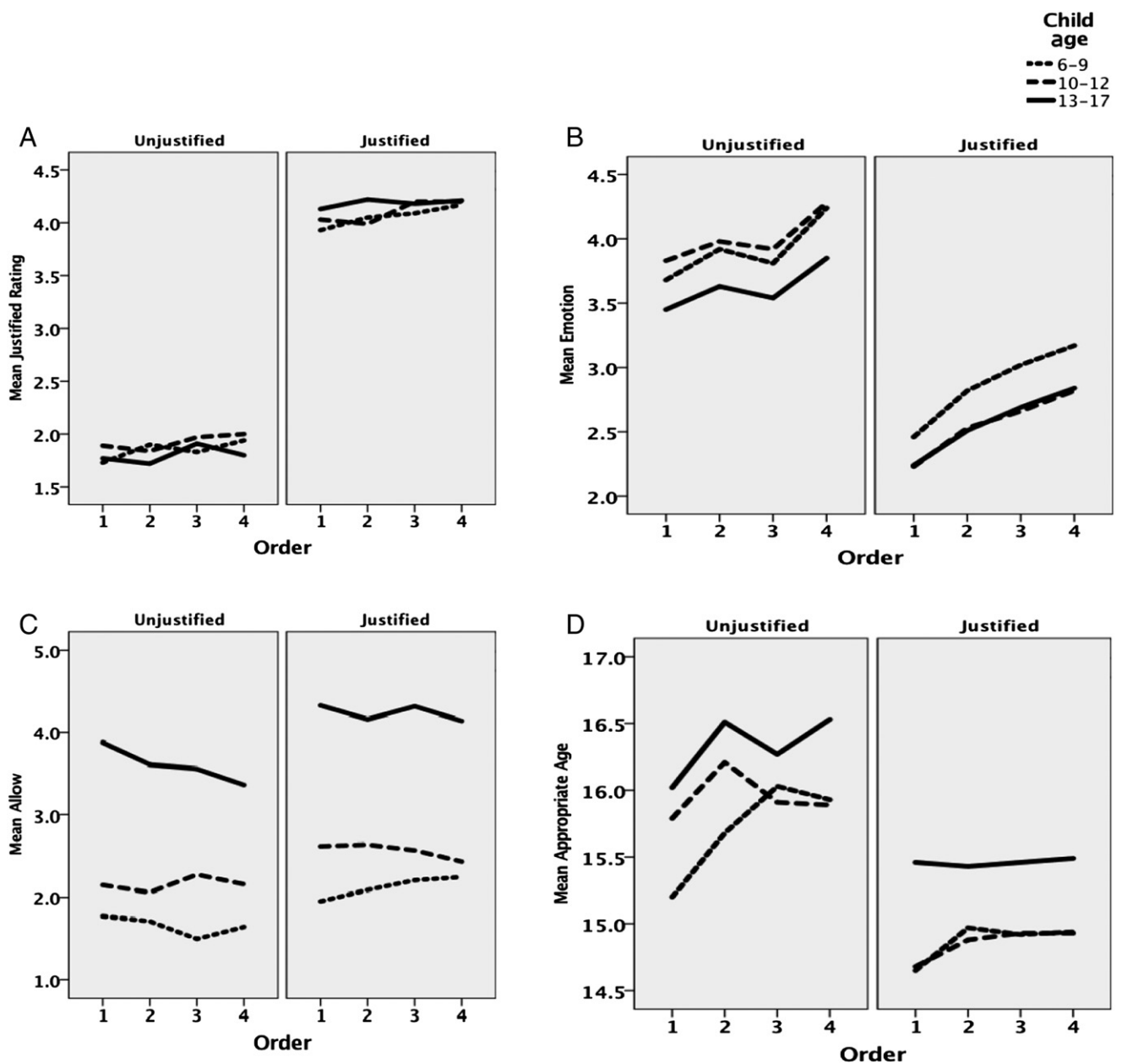
FIGURE 2
Effects of experimental condition and age of child by order of presentation on (A) justification, (B) emotion, (C) allowance, and (D) age.

Our findings suggest that although the violence in PG-13 movies may be disturbing to parents, their acceptance of this violence may nevertheless account for the growing popularity of gun violence in these films. Even films with unjustified but bloodless gun violence were seen as appropriate for adolescents at age 16, which would place such films below the criterion for an R rating. Violence seen as justified was judged appropriate for those at age 15. Although these ages are consistent with the PG-13 rating, it may be appropriate for the MPAA to introduce a more nuanced rating system that gives parents more guidance than one that fails to warn them about content that may be appropriate for youth younger than 17 but not as young as 13.

The increasing presence of comic book heroes in PG-13 films in recent years may also make their use of gun violence appear acceptable.[7] Unfortunately, the approval of gun use in films with justified violence may teach the lesson that gun use is acceptable when responding to threats from others. Judging when violence is justified, however, is subject to personal interpretation. For example, sending the message that defending oneself is justification for use of force may increase its use.

TABLE 4 Effects of Conditions and Other Predictors on Unstandardized Intercepts and Slopes of Dependent Variables

	Variable							
	Justification for Violence		Negative Emotion		Allow Own Child		Appropriate Age	
	Intercept	Slope	Intercept	Slope	Intercept	Slope	Intercept	Slope
Condition[a]	2.27**	0.32*	−1.26**	0.08	0.44**	0.17*	−0.85**	−0.08*
Child age	0.06	−0.02	−0.11	−0.04	1.15**	0.05	0.36**	−0.02
Movies seen	0.06*	0.01	0.08*	−0.04**	0.19*	−0.01	−0.19**	−0.02
Intercept[b]	—	−0.14*	—	−0.00	—	−0.13*	—	−0.04**
Order								
1	1.0	0.00	1.0	0.0	1.0	0.0	1.0	0.0
2	1.0	1.00	1.0	1.0	1.0	1.0	1.0	1.0
3	1.0	1.92**	1.0	1.30**	1.0	1.70**	1.0	2.8**
4	1.0	2.48**	1.0	2.04**	1.0	1.96**	1.0	3.8**
Goodness of fit[c]	RMSEA = 0.00; TLI = 1.00; CFI = 1.00		RMSEA = 0.10; TLI = 0.97; CFI = 0.98		RMSEA = 0.03; TLI = 0.99; CFI = 0.99		RMSEA = 0.062; TLI = 0.98; CFI = 0.99	

Goodness of fit for each outcome is also presented. CFI, comparative fit index; RMSEA, root mean squared error of approximation; TLI, Tucker-Lewis index; —, not applicable.
[a] Condition was coded 1 = justified, 0 = unjustified.
[b] Intercepts were fixed at 1.0; slopes were fixed for the first 2 orders of viewing and estimated for the last 2 orders.
[c] Fit statistics included the RMSEA <0.07, TLI, and CFI >0.95.
** $P < .01$.
* $P < .05$.

TABLE 5 Mixed-Effects Maximum Likelihood Regression of Appropriate Age of Viewing ($N = 610$)

Predictor	Coefficient	SE	z Score	P	95% CI
Linear order	0.091	0.024	3.73	<.001	0.043 to 0.138
Quadratic order	−0.063	0.021	−2.97	.003	−0.105 to −0.021
Condition	−0.952	0.015	−5.76	<.001	−1.27 to −0.628
Parent age	0.029	0.010	2.89	.004	0.009 to 0.050
Child age	0.062	0.025	2.52	.012	0.014 to 0.110
Seen before	−0.218	0.063	−3.43	.001	−0.342 to −0.093
Movies seen	−0.183	0.056	−3.30	.001	−0.292 to −0.074
Intercept, y	14.3	0.481	19.00	<.001	13.19 to 15.07
Model SE	0.041	—	—	—	—

Analysis conducted by using Stata version 14 (Stata Corp, College Station, TX). Condition coded as 1 = justified; 0 = unjustified. Parent and/or guardian age from 25 to 76; child age from 6 to 17; seen before coded as 1 = yes; 0 = no. Movies seen coded as 0–15. —, not applicable.

TABLE 6 Significant Mediated Paths Affecting the Intercepts and Slopes of Restricted Viewing for Each Analysis Using Bias-Corrected Bootstrapped SE With 95% CIs

Path	Allow Own Child		Appropriate Age	
	Estimate	95% CI	Estimate	95% CI
Condition effects				
Condition→justification→slope	0.130	0.030 to 0.288	−0.080	−0.161 to −0.020
Condition→justification→emotion→intercept	0.456	0.322 to 0.594	−0.752	−0.964 to −0.575
Movies seen effects				
Movies→intercept→slope	−0.014	−0.037 to −0.003	0.010	0.004 to 0.021
Movies→emotion→intercept	−0.044	−0.080 to −0.016	0.072	0.026 to 0.124
Movies→emotion→intercept→slope	—	—	−0.003	−0.007 to −0.001
Movies→justification→emotion→intercept	0.012	0.002 to 0.024	−0.020	−0.037 to −0.002

—, not applicable.

After Florida passed its "stand your ground law," there was an increase in both justified and unjustified gun homicide in the state.[23] Future research is needed to determine if repeated exposure to films with bloodless depictions of justified gun use can influence youth and their parents to view gun use as acceptable.

It was somewhat surprising that we did not observe the strong increase in acceptance of child viewing with successive viewings that was found in an earlier study of parental reactions to screen violence.[9] In the current study, there was only a reversed effect in the justified condition. It is noteworthy, however, that parents in this study were already reporting lower levels of restriction after the first video than in the earlier study. We also did not expose parents to

as many videos as in the earlier study. Another study revealed that desensitization did not occur until after 4 viewings of violent content.[13]

Despite our clear findings regarding parental reactions to bloodless screen violence, it is important to consider that we only showed participants a 90-second segment of each movie with a focus on a violent scene. This reaction might be different if they viewed each film in entirety. Nevertheless, parents who had previously seen the films only rated them as slightly more age appropriate (less than a quarter of a year), and pre-exposure was comparable between conditions. Our sample was somewhat older on average than parents in the population, but this also was controlled across conditions, and we took both previous viewing and age of the parent into account in estimating parents' judgments of appropriate viewing age.

CONCLUSIONS

Our findings suggest that the increasing parental acceptance of gun violence in PG-13 movies could be due to its relatively bloodless portrayal of violent consequences and its often-justified purpose. Giving such movies a PG-13 rating may be less restrictive than is warranted. Further research is called for to determine if viewing of violence in films and other violent media that appears to be justified affects children's interpretations of such content and their attitudes toward the use of guns for self-defense.

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REFERENCES

1. Cantor J. Fright reactions to mass media. In: Bryant J, Oliver MB, eds. *Media Effects: Advances in Theory and Research*. 3rd ed. New York, NY: Routledge; 2009:287–303

2. Dysinger WS, Rudmick CA. *The Emotional Responses of Children to the Motion Picture Situation*. New York, NY: Macmillan Publishing Company; 1933

3. Cantor J. *Mommy I'm scared: How TV and Movies Frightens Children and What We Can Do to Protect Them*. San Diego, CA: Harvest/Harcourt; 1998

4. Motion Picture Association of America. The film rating system. Available at: www.mpaa.org/film-ratings/. Accessed September 19, 2016

5. Nalkur PG, Jamieson PE, Romer D. The effectiveness of the motion picture association of America's rating system in screening explicit violence and sex in top-ranked movies from 1950 to 2006. *J Adolesc Health*. 2010;47(5):440–447

6. Bushman BJ, Jamieson PE, Weitz I, Romer D. Gun violence trends in movies. *Pediatrics*. 2013;132(6):1014–1018

7. Romer D, Jamieson PE, Jamieson KH. The continuing rise of gun violence in PG-13 movies, 1985 to 2015. *Pediatrics*. 2017;139(2):e20162891

8. Rideout V. *Parents, Children & Media: A Kaiser Family Foundation Survey*. Menlo Park, CA: The Henry J. Kaiser Foundation; 2007:4. Available at: https://kaiserfamilyfoundation.files. wordpress.com/2013/01/7638.pdf

9. Romer D, Jamieson PE, Bushman BJ, et al. Parental desensitization to violence and sex in movies. *Pediatrics*. 2014;134(5):877–884

10. Bushman BJ, Huesmann LR. Short-term and long-term effects of violent media on aggression in children and adults. *Arch Pediatr Adolesc Med*. 2006;160(4):348–352

11. Sparks GG, Sparks CW, Sparks EA. Media violence. In: Bryant J, Oliver MB, eds. *Media Effects: Advances in Theory and Research*. 3rd ed. New York, NY: Routledge; 2009:269–286

12. Potter WJ. Adolescents and television violence. In: Jamieson PE, Romer D, eds. *The Changing Portrayal of Adolescents in the Media Since 1950*. New York, NY: Oxford University Press; 2008:221–249

13. Fanti KA, Vanman E, Henrich CC, Avraamides MN. Desensitization to media violence over a short period of time. *Aggress Behav*. 2009;35(2):179–187

14. Potter WJ. *On Media Violence*. Thousand Oaks, CA: Sage Publications; 1999

15. Samson L, Potter RF. Empathizing and systemizing (un)justified mediated violence: psychophysiological indicators of emotional response. *Media Psychol*. 2016;19(1):156–180

16. Muthen BO, Muthen LK. *Mplus User's Guide*. 8th ed. Los Angeles, CA: Muthen & Muthen; 1998–2017

17. Bollen KA, Curran PJ. *Latent Growth Curve Models: A Structural Equation Perspective*. 1st ed. Hoboken, NJ: John Wiley, and Sons; 2006

18. Mackinnon DP, Lockwood CM, Williams J. Confidence limits for the indirect effect: distribution of the product and resampling methods. *Multivariate Behav Res*. 2004;39(1):99

19. US Census Bureau. Table F1. Family households, by type, age of own children, age of family members, and age, race, and Hispanic origin of householder: 2014. 2014. Available at: https://www.census.gov/data/tables/ 2014/demo/families/cps-2014.html. Accessed January 10, 2018

20. Dal Cin S, Stoolmiller M, Sargent JD. When movies matter: exposure to smoking in movies and changes in smoking behavior. *J Health Commun*. 2012;17(1):76–89

21. Wills TA, Sargent JD, Gibbons FX, Gerrard M, Stoolmiller M. Movie exposure to alcohol cues and adolescent alcohol problems: a longitudinal analysis in a national

sample. *Psychol Addict Behav.* 2009;23(1):23–35

22. Dillon KP, Bushman BJ. Effects of exposure to gun violence in movies on children's interest in real guns. *JAMA Pediatr.* 2017;171(11):1057–1062

23. Humphreys DK, Gasparrini A, Wiebe DJ. Evaluating the impact of Florida's "stand your ground" self-defense law on homicide and suicide by firearm: an interrupted time series study. *JAMA Intern Med.* 2017;177(1):44–50

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