

**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**

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## ABSTRACT

**Context:** Youth exposure to explicit violence and sex in movies is linked to adverse health outcomes and is a serious public health concern. The Motion Picture Association of America's (MPAA) rating system's effectiveness in reducing youth exposure to harmful content has been questioned.

**Objective:** To determine the effectiveness of MPAA's rating system in screening explicit violence and sex in films since the system's initiation (1968) and the introduction of the PG-13 category (1984). Also, to examine evidence of less restrictive ratings over time ("ratings creep").

**Design:** Top-grossing movies from 1950 to 2006 ( $N = 855$ ) were coded for explicitness of violent and sexual content. Trends in rating assignments and in the content of different rating categories since 1968 were assessed.

**Results:** The explicitness of both violent and sexual content significantly increased following the rating system's initiation. The system did not differentiate violent content as well sexual content, and ratings creep was only evident for violent films. Explicit violence in R-rated films increased, while films that would previously have been rated R were increasingly assigned to PG-13. This pattern was not evident for sex; only R-rated films exhibited higher levels of explicit sex compared to the pre-ratings period.

**Conclusions:** While relatively effective for screening explicit sex, the rating system has allowed increasingly violent content to enter into the PG-13 category, thereby increasing youth access to more harmful content. Assignment of films in the current rating system should be more sensitive to the link between violent media exposure and youth violence.

Adolescents are avid moviegoers, and movies contribute to young audiences' socialization<sup>1,2</sup>. Explicit violence is an especially worrisome influence of films and other screen media considering extensive research showing that violent behavior in youth is linked to violent media consumption<sup>3-10</sup>. There is also reason to be concerned about the potential harmful effects of sexually explicit media,<sup>11</sup> with research demonstrating a connection between exposure to media sex portrayals and early sexual initiation<sup>12-14</sup>. Youth exposure to potentially harmful film content is thus a serious public health concern<sup>12</sup>.

In 1930, the film industry imposed a Production Code that effectively censored such content in films shown in the U.S. The code was abandoned in November, 1968 by the Motion Picture Association of America (MPAA) in favor of an age-based rating system intended to help parents “determine each motion picture’s suitability for viewing by their children”<sup>15</sup> (pg. 2). The MPAA created the Classification and Ratings Administration (CARA) to assign ratings, including “Restricted” and “NC-17” ratings that would prohibit ticket sales to youth under the age of 17. CARA, whose only membership criterion is to be a parent, considers theme, language, nudity, sex, violence, and drug abuse in rating films. Though CARA claims to have no official criteria other than to “reflect the current values of the majority of American parents”<sup>15</sup> (pg. 1), a former member unofficially reported that one rule exists: “One sexual expletive results in a PG-13 rating. Two sexual expletives automatically result in an R rating, but 1 sexual expletive used in a sexual context is an automatic R”<sup>16</sup>. Recently, the MPAA added content descriptors (“profanity,” “nudity,” and “drug abuse,” for example) to their rating definitions (see [http://www.mpa.org/FlmRat\\_Ratings.asp](http://www.mpa.org/FlmRat_Ratings.asp)).

While many parents check ratings before allowing their children to view films<sup>17</sup>, research indicates that many are dissatisfied with CARA’s ratings and want stricter criteria<sup>18,19</sup>. Parents

are particularly concerned about the lenience of PG-13, which was introduced in 1984 to identify films in the Parental Guidance (PG) category that may be inappropriate for youth under age 13. Indeed, the different rating systems for movies, television, and video games can be confusing, and the American Academy of Pediatrics has called for a universal rating system that considers the potentially harmful influences of multiple media on adolescent health.<sup>20</sup>

Two issues surround the usefulness of the current rating system. The first is whether the system adequately identifies violent and sexual content. Can parents trust the MPAA rating system to filter extreme violent and sexual content? The second concerns the phenomenon of “ratings creep”, which refers to the tendency for increasingly harmful content to be found in less restrictive ratings over time.<sup>21</sup> This can occur when the most restrictive R category is increasingly assigned to more harmful content while a less restrictive rating category, like PG-13, absorbs films with content that would have previously been assigned to R. This pattern would be reflected in declining use of the R category, increasing use of PG-13, and increasing levels of harmful content in both rating categories. Despite the criterion that “rough or persistent violence is absent” in PG-13 films, studies indicate that PG-13 contains equal, if not more, violence than R films.<sup>21-23</sup>

To examine these issues, content should be evaluated with a standardized coding system applied to top-grossing films over time. To be most helpful, the analysis should cover a period before the rating system was initiated so that the meaning of the ratings could be compared with prior levels of content. However, the few studies that have examined the relationship between ratings and content have been limited to short time frames. Webb et al<sup>23</sup> found that almost 90% of top-grossing PG-13 films in 1999 contained violence. Jenkins et al<sup>22</sup> reported that the number

of violent acts among top-grossing films in 1994 was higher in R than in PG-13 and in PG-13 than in PG, but they only studied that year.

The present study was undertaken as part of a global analysis of how changes in mass media entertainment content since 1950 may have affected adolescent socialization and health (see YouthMediaRisk.org) and therefore provided an opportunity to examine the MPAA system's effectiveness regarding two types of film content that have been linked to adolescent risk behavior, namely the amount and explicitness of violent and sexual content.

The explicitness of violent and sexual content is of particular concern. Bandura's social cognitive theory of mass media suggests that media actors can influence users by modeling new behaviors that can be readily imitated, reducing inhibitions to enact those behaviors once they are learned, and by changing the acceptance of those behaviors even if they are not imitated.<sup>24</sup> The greater the explicitness or completeness with which those behaviors is depicted, the greater the likelihood that these effects will occur.<sup>25</sup> Indeed, such "copycat" behavior of entertainment media portrayals has even been evidenced in obviously self-destructive behavior such as suicide<sup>26</sup>. Exposure to explicit violence is not only associated with heightened subsequent aggression but can also produce fear<sup>27,28</sup> and a desensitization effect in which empathy for victims is reduced.<sup>29,30</sup> Exposure to explicit sexual content has been associated with teen pregnancy<sup>31</sup>, early sexual initiation<sup>14,32</sup>, and unhealthy sexual attitudes among adolescents.<sup>33</sup>

In this study, we first asked whether CARA's ratings successfully classify films with explicit violent or sexual content. With the abandonment of the Production Code in 1968, we expected explicit violent and sexual content to increase overall in films. However, if the MPAA rating system were effectively screening such content, we would expect film ratings to correlate with the prevalence of explicit content. Second, we examined the performance of the rating

system over time to determine the presence of ratings creep. In particular, we examined the performance of PG-13. If its major impact were to differentiate films within the PG category, then films with more explicit content should have shifted from the PG to the PG-13 category. However, if ratings creep had occurred over time, PG-13 films would also have drawn content from films that would previously be assigned to the R category. Such an effect would be evidenced by an increase in PG-13 films and a decrease in R films following the introduction of the PG-13 category. In addition, both R and PG-13 films would exhibit increases in explicit violent or sexual content.

## **METHODS**

### **Film Sample**

The top-30 top-grossing films per year from 1950 to 2006 were identified from annual lists compiled by *Variety* magazine. To identify trends in amount and explicitness of violence and sex, a representative half-sample of these films was selected for content coding ( $N = 855$ ). Every second film rank was used, with the starting rank (1<sup>st</sup> or 2<sup>nd</sup>) being determined randomly. For cases in which films were not available for purchase (about 5%), the next ranking film was used. To identify trends in assignment of rating categories, the full top-30 sample from 1969 onwards was used ( $N = 1140$ ).

### **Coding**

Films were content analyzed to assess the amount and explicitness of violence and sex. Twenty-four undergraduate students were trained as coders. For training, 21 hours of diverse film content were used. Coders were required to demonstrate a particularly high level of reliability (Krippendorff's  $\alpha \geq 0.70$ , three or more coders)<sup>34</sup> before initiating the formal coding process. Krippendorff's reliability formula controls for chance agreement between

multiple coders and can handle both nominal and rating scale data such as employed in this study. Coders viewed films in five-minute segments and entered coding scores into a computerized database. For example, a two hour movie contained 24 segments.

Each segment was coded for the presence of violent (yes or no) and sexual (yes or no) content (Violence alpha = 0.72; Sex alpha = 0.84). Violence was defined as any intentional infliction of physical pain or harm on a character by another, or implication of intention to harm.<sup>35,36</sup> Accidents were not coded. Sexual content was defined as any behavior that suggested a precursor to or engagement in sexual intercourse or other sexual activity.<sup>25</sup>

Segments that contained any violent or sexual content were further coded to evaluate the explicitness of the portrayal. Coders used a 5-point scale for violence and a 4-point scale for sex, adapted from Leone,<sup>25</sup> ranging from low to high levels of explicitness (Violence alpha = 0.79; Sex alpha = 0.87). In cases where multiple violent or sexual episodes occurred in one segment, the most explicit episode (highest on the 4-point scale) was used. Full coding rules are presented in Appendix 1.

An overall explicitness score was calculated for each film using the sum of the explicitness ratings for segments that contained either violent or sexual content divided by the number of segments in the film. This score took into account the proportion of the film that contained the violent or sexual content as well as the explicitness of the content present. It also controlled for differences in film length, which could vary over time period of the study. Thus, a film with no violent or sexual content received a score of 0, while a film with such content in any segment received a weighted mean of its explicitness ratings.

MPAA ratings for all top-30 films per year were determined from the film packaging, and were coded G = 1, PG = 2, PG-13 = 3, and R/NC-17 = 4 (only two films were NC-17).

## Analysis

We calculated Spearman correlation coefficients between film ratings and explicitness scores to determine whether ratings predict content at all. To assess differences between neighboring rating categories (e.g., R vs. PG-13), we tested planned contrasts in analysis of variance (ANOVA).

To examine time trends in the assignment of ratings, we regressed the proportion of films in each rating category on year of movie release, using all top-30 films for each year from 1969 – 2006. We categorized years into 8-year time periods to increase the stability of these proportions. Then, we examined the impact of the rating system on trends in the explicitness of violent and sexual content from 1950-2006. One important predictor was the initiation of the age-based rating system in 1968 (1950-1968 = 0; post-1968 = 1). In addition, we tested time trend models for each rating category post-1968. Because explicitness scores for violence and sex were highly skewed, we divided each distribution at the top quartile (lower three quartiles = 0 and highest quartile = 1) and used logistic regression to analyze time trends in this score.

## Results

**Table 1** contains means and standard deviations for the explicitness of violent and sexual content in the pre-ratings period and rating categories post-1968. The majority of the rated films (758 or 66.6%) were not restricted to youth. Most films (91.1%) contained at least one violent segment: 90.9% of G-rated films, 91.4% of PG-rated films, 95.5% of PG-13 rated films, and 93.6% of R/NC-17 films. Regarding sex, 84.6% of films contained at least one segment: 68.2% of G-rated films, 82.0% of PG-rated films, 85.0% of PG-13 rated films, and 88.3% of R films.

Spearman's rho indicated that ratings were correlated with explicitness for both violence ( $r=.251, P<.0001$ ) and sex ( $r=.280, P<.0001$ ); an examination of these correlations within earlier

and later time periods found them to be comparable. **Table 2** shows the results of ANOVA planned contrasts on differences in explicitness of violent and sexual content across pairs of neighboring rating categories. Despite the significant correlations between ratings and explicitness, significant differences in violence explicitness only emerged between PG and PG-13, while explicitness of sexual content was strongly differentiated by R versus PG-13 and PG versus G. In fact, more than a third (37.3%) of PG-13 films were at or above the average amount of explicit violence in restricted films, a pattern that was present more recently as well as earlier in the period since 1984. However, *no* PG-13 films contained more than the average explicitness of sexual content in restricted films.

**Table 1 & 2 here**

#### *Ratings Trends*

**Figure 1** shows that the proportion of PG-13 films dramatically increased since 1984 ( $\beta = 2.75$ , 95% CI: 2.37, 3.13). There were declines over time in both G ( $\beta = -.81$ , 95% CI: -1.22, -.41) and PG films ( $\beta = -1.57$ , 95% CI: -2.10, -1.04). The proportion of R films fit a quadratic model ( $\beta_1 = 5.09$ ,  $\beta_2 = -0.69$ ,  $R^2 = .62$ ), indicating that this category rose and then declined following PG-13's introduction.

**Figure 1 here**

#### *Trends in Explicitness of Violent and Sexual Content*

Logistic regression models indicated significant increases in violent (OR = 3.68, 95% CI: 2.45, 5.53) and sexual (OR = 1.50, 95% CI: 1.10, 2.05) explicitness following the initiation of the 1968 rating system. In addition, **Figure 2A** shows that the explicitness of violent content increased over the entire time period in R and in PG-13 movies since 1984. Consistent with a ratings creep interpretation, while violence increased in both PG-13 and R films, recent PG-13

movies from 2001 to 2006 were significantly higher in violence than earlier R movies from 1977 to 1984,  $t = -2.186$ ,  $P = .024$ . And, the number of PG-13 films steadily increased while R films declined over time (see also Figure 1).

**Figure 2B** indicates that once the rating system was initiated, restricted films were significantly more likely to contain highly explicit sexual content over time than were unrestricted films ( $\beta = -.26$ ,  $OR = .77$ , 95% CI: .61, .98). However, there was no evidence of ratings creep regarding the explicitness of sexual content. Sexual explicitness actually decreased over time in R films and although PG-13 films contained somewhat more explicit content than did PG films, the time trend for PG-13 was flat, indicating little evidence of absorption of R films into PG-13 films.

**Figures 2A & B here**

## DISCUSSION

The explicitness of violence and sex in popular movies rose following the 1968 replacement of the Production Code with the MPAA rating system. We examined two concerns with the new system. First, we tested the system's ability to reliably differentiate different levels of explicitness for violent and sexual content. Although the overall system correlated significantly with both violent and sexual explicitness, there were pairs of ratings that were not reliably different, for example the PG versus PG-13 comparison for sexual explicitness. Furthermore, differences in violence between R and PG-13 were often blurred while this was seldom the case for sex. Our analysis indicates that parents concerned about exposing youth to potentially influential sexual content can feel somewhat confident about differences between R and unrestricted categories, but much less so for differences between PG-13 and PG. Regarding violence, the difference between restricted and unrestricted films was not very informative. R

and PG-13 films contain high levels of explicit violence and while PG was lower than PG-13, it was not very different from G.

Second, there was evidence of ratings creep regarding violent content. Violence increased steadily in both R and PG-13 films over time, while the total representation of R films declined and PG-13 films increased. This pattern suggests that CARA has systematically changed its criteria over time for assigning R to violent films, since it increasingly takes more violence to receive an R rating. Simultaneously, PG-13 has absorbed films that would previously have been assigned R, and has exhibited an increasing trend regarding the explicitness of violent content.

There did not appear to be ratings creep for sexual content. Unlike violence, the explicitness of sexual content in R films declined over time and did not increase in PG-13. The size of the PG category declined over time indicating some movement towards PG-13, but the level of sex in unrestricted categories has not increased much over the level that existed prior to the rating system across top-grossing films. The major increase occurred in restricted films, indicating that the system appears to work for sex, especially compared to violence. In response to the argument that violent content is increasingly accessible to youth and that sexual content drives CARA's ratings, Jack Valenti, the former long-time president of the MPAA, maintained that violence and sex are weighted equally in rating considerations.<sup>37</sup> Our findings challenge this assertion and the MPAA system's purported role in informing parents of age-appropriate content.

These findings suggest that CARA likely considers sexual content to be more harmful than violent content. This is an unfortunate consequence of the rating system, given considerable research showing links between youth violent behavior and violent entertainment media

exposure.<sup>3-10</sup> Especially concerning is the finding that proportions of PG-13 films escalated drastically over time to the point where they accounted for about half of top-grossing films. PG-13 has contained increasingly violent content over time. Hence, youth may receive greater exposure to more powerful violence over time through popular films.

Similar to Webb et al and Jenkins et al, our study found significant levels of violence in PG-13 and R films. While similar definitions of what constitutes violent content were used, Webb et al examined the PG-13 category exclusively, without comparing its content to other rating categories. Jenkins et al examined PG, PG-13 and R categories among the 100 top-grossing films but only for 1994. In addition, our inclusion of the G category showed that there was no significant difference in explicit violence between G and PG, a concerning finding given that children are the target audience for most G movies. Indeed, Thompson and Yokota found significantly increasing levels of violence in G-rated animated films from 1937 to 1999. Overall our study expands on these previous studies by incorporating a much larger and denser sample, by examining content in films released before the ratings era, and by considering all rating categories, except NC-17, for violent and sexual content.

Recent research has also shown increased youth exposure to restricted violent content. Worth et al.<sup>38</sup> showed that there was widespread exposure to popular movies rated R for violence among American adolescents aged 10 to 14 years; they showed that all “extremely violent” movies rated R for violence and released between 1998 and 2002 were seen by some 10-14 year old American youth, and over a third of these youth had seen the exceedingly violent films *Blade* and *I Still Know What You Did Last Summer*. Increased exposure and access to extreme violence informs youths’ worldviews, potentially rendering increasingly graphic violence more normal in youths’ lives.<sup>29</sup>

Given CARA's attempts to reflect American parents' current values and our evidence of ratings creep in violent portrayals, one explanation is a possible shift in American parents' values over time. In his recently released book, "The Moment of 'Psycho': How Alfred Hitchcock Taught America to Love Murder," (2009) David Thomson, the British film critic, argues that *Psycho* made it possible for increasing levels of violence to enter into motion pictures. Particular to the American movie experience, Thomson argues that *Psycho* was significant in shifting the ethos of American censorship, thus helping to build a culture more accepting of movie violence. "In terms of cruelties we no longer notice," he writes, "we are another species."

Ultimately our findings must be viewed in light of MPAA's motivations for implementing the rating system. Some have argued that MPAA was created to deflect government control of the movie industry; however, the movie industry insists that its role is to entertain viewers, not educate them. Unfortunately, this goal conflicts strongly with the interests of parents and the public's health. When less restrictive ratings, such as PG-13, allow films with increasingly violent content to grow in number, youth are increasingly exposed to harmful content. A possible reason for PG-13's growth over time is its capacity to tolerate increasingly explicit violence without restricting ticket sales to youth. Violence is an appealing form of screen content.<sup>397</sup> Youth aged 12-24 buy more movie tickets than any other age group;<sup>408</sup> hence it is in the MPAA's financial interest to limit the number of restricted films. Indeed, PG-13 films generate far more revenue than do R films. From the perspective of ticket sales, this is reason for PG-13 films to grow in number while R films decline.

Limitations should be noted. This study was a content analysis, not a measure of audience impact. The findings may not generalize to films ranking lower than the top-30. However, from 2001-2006, the top-30 ranked films represented approximately 50% of American

box office sales<sup>41,42</sup>. While evidence suggests that violence sells and that youth, especially boys, are drawn to violent content,<sup>39</sup> we cannot conclude that youth are the main target audience of these violent films. We also have not examined the usefulness of the recently introduced content descriptors. Still, our study fills an important gap in the literature on the rating system's treatment of potentially harmful material by considering a denser sample of top-grossing films over a longer period of time.

## CONCLUSION

This study signals a need for CARA to treat violence and sex similarly in its ratings. The MPAA rating system fares relatively well in informing parents about potential youth exposure to explicit sex. However its treatment of violence is more lenient, allowing greater youth exposure to more harmful violent content. It would be helpful for CARA to rely more heavily on empirical research that has identified what is “harmful.” Parents will need to rely on more information (such as Screen It!: [www.screenit.com](http://www.screenit.com), and Kids-in-Mind: [www.kids-in-mind.com](http://www.kids-in-mind.com)) than just what is advised by MPAA. A universal rating system, such as the one proposed by Walsh and Gentile,<sup>430</sup> is one possible solution to the confusion that surrounds rating systems. Despite the ‘Restricted’ rating, adolescents find ways to access R-rated movies; future research should examine the processes that facilitate youth access to harmful content and how they can be mitigated. Health care professionals working with parents and youth can play an important role in advocating for consistent ratings criteria for protecting youth from potentially harmful screen images; it would be helpful to include health care and media experts’ perspectives on the CARA board.

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## **Appendix 1. Coding Rules of Violent and Sexual Content**

### **Explicitness of Violent Content**

Violence is rated on a scale of 1-4 (modified version of Leone 2002):

- 0. No Violence Modeling – Coded only if no violence occurs. For example, occasionally guns are depicted in the scene in a potential use setting (i.e. A handgun shown in someone’s pocket, A rifle hanging over someone’s shoulder).
- 1. Consequence/Aftermath Sequences – Body is shown or the result of violence is shown, but the act of violence itself is not shown in the scene. Representations of injuries; maimed, disfigured, or dead bodies; characters bleeding; pools of blood; splattered blood. Simple gun portrayal (not used). Also, verbal abuse in the case of bullying.
- 2. Somewhat Modeled – Violence is portrayed in the scene, but a murder is not portrayed, no blood is shed, and a weapon isn’t shown hitting a body. One character striking another would be coded as “somewhat modeled.” Also, guns fired at an intended target but not shown hitting it.
- 3. Modeled – Violence, including the use of weapons and portrayal of murder, can be shown, but without bloodshed if a weapon is used. Character must be struck.
- 4. Very Modeled – Sequences coded as very graphic usually include murder, weapons, and bloodshed. The primary difference between “modeled” and “very modeled” is the presence of blood. The idea of penetration – by a bullet, shotgun shell, knife, poison, or anything else – is key, but the penetration will not be accompanied by bloodshed.
- 5. Most Modeled – Sequences that combine attributes from the preceding categories are coded as “most modeled.” Of primary importance is the combination of penetration and bloodshed. Also coded as “most modeled” is the severing of any body part.

### **Explicitness of Sexual Content**

Modeling of sexual content is on a 4 point scale (Leone 2002):

- 1. Somewhat Modeled – This would involve kissing (on the lips), but no other sexual contact, seductive dancing with clothing, and the removal of clothing without visible nudity. A close-up or extreme close-up of a character engaged in sexual activity would be “somewhat modeled,” as would a female character’s exposed breasts, if she is not

involved in sexual activity. Implied intercourse with no sexual contact would also be “somewhat modeled.”

- 2. Modeled – Here, in addition to or instead of kissing, add groping, fondling, rubbing, or grinding (basically behavior considered foreplay) while clothed or partially clothed (female breasts may be visible but no genital areas are). No (simulated) penetration vaginally, orally, or anally or (simulated) masturbation.
- 3. Very Modeled – Here, in addition to kissing, add groping, fondling, rubbing, or grinding (basically behavior considered foreplay) while naked. Simulated intercourse, other sexual penetration, or masturbation where all characters involved are not shown to be completely naked (exception is clothing like garter belts or crotch-less panties, that can remain on during a scene of sexual penetration). Also, visible female or male genital areas, independent of ANY sexual activity from kissing to simulated intercourse, would be “very modeled.”
- 4. Most Modeled – Simulated intercourse or any other sexual penetration or masturbation where all character(s) involved are shown to be completely naked or wearing clothing like garter belts or crotch-less panties, which can remain on during a scene of sexual penetration. Visible female or male genital areas NOT independent of any sexual activity would be “most modeled.”

**Table 1. Means and Standard Deviations of Violent and Sexually Explicit Content in Unrated (1950 – 1968) and Rated Films (1969-2006)**

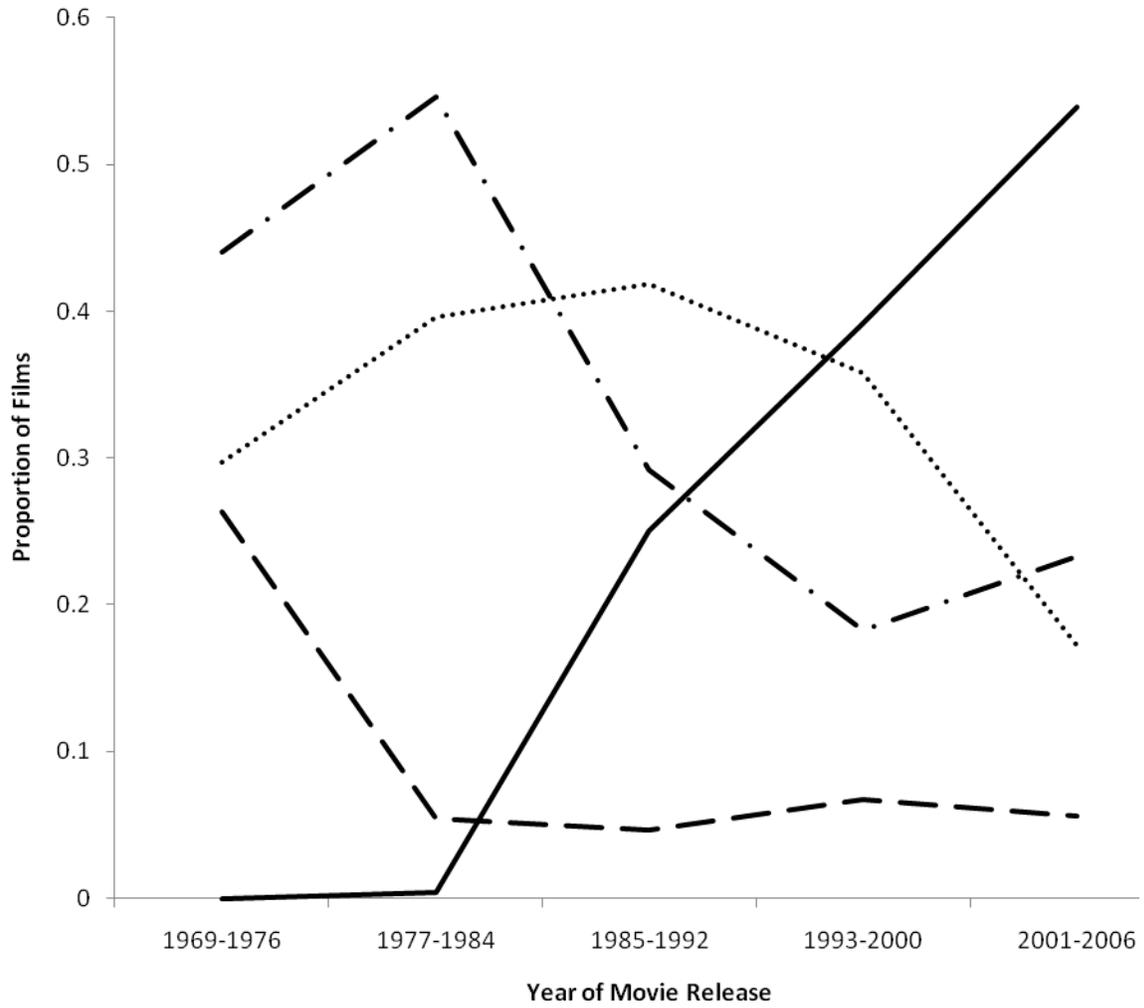
Rating Category	Violence		Sex		N (of all top-30 films, 1969-2006)
	Mean	SD	Mean	SD	
1950-1968 (n=285)	.52	.52	.38	.56	
G (n=51)	.64	.53	.12	.20	111 (9.7%)
PG (n=201)	.75	.64	.45	.74	389 (34.1%)
PG-13 (n=129)	1.02	.82	.49	.61	258 (22.6%)
R (n=189)	1.13	.86	1.44	2.35	380 (33.3%)

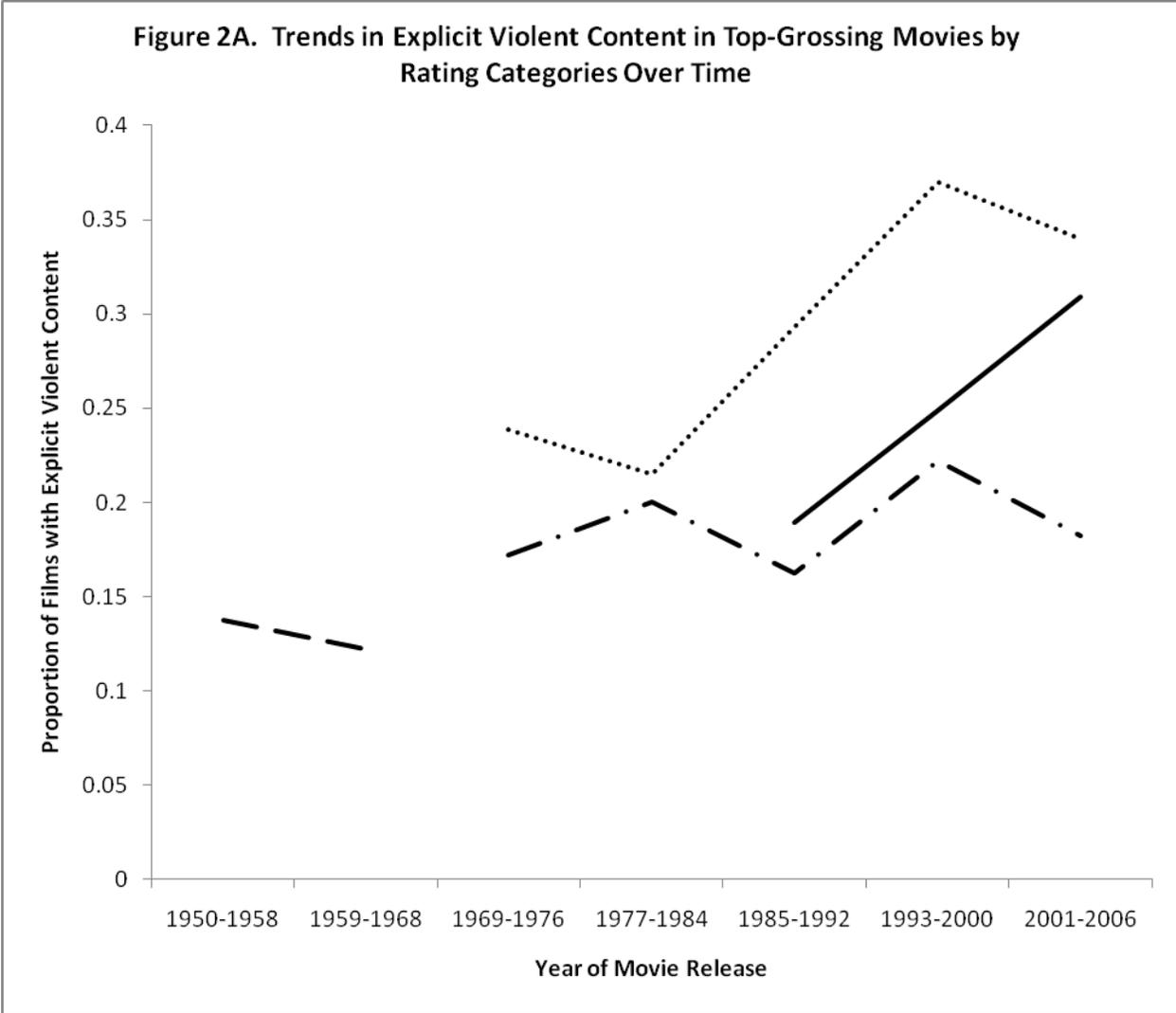
**Table 2. Results for Planned Contrasts between Neighboring Rating Categories**

	Value of Contrast	<i>t</i> *	<i>P</i>
<i>Violent Content</i>			
R vs. PG-13	0.11	1.34	.256
PG-13 vs. PG	0.27	3.15	.002
PG vs. G	0.12	1.14	.184
<i>Sexual Content</i>			
R vs. PG-13	0.95	5.26	.000
PG-13 vs. PG	0.05	1.19	.236
PG vs. G	0.31	5.71	.000

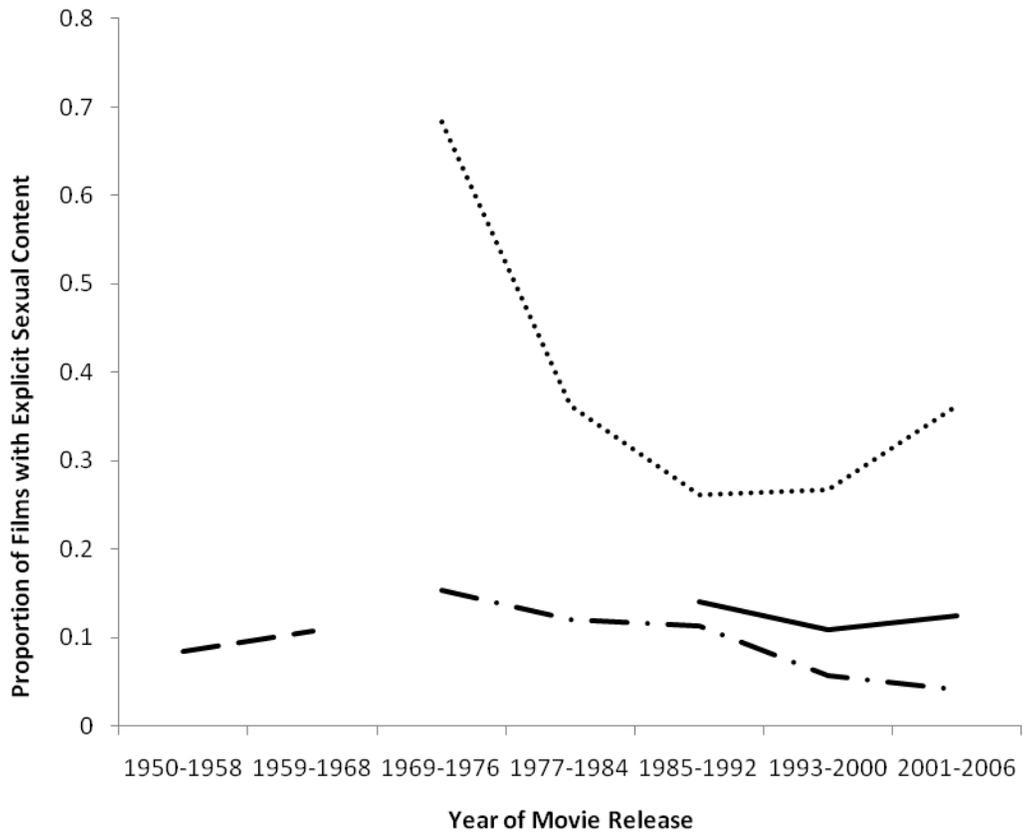
\*Does not assume equal variances

Figure 1. Trends in Proportions of MPAA Ratings in Top-Grossing Movies Over Time





**Figure 2B. Trends in Proportions of Explicit Sexual Content in Top-Grossing Movies by Rating Categories Over Time**



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