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Sex and violence in the movies: Empathy as a moderator of the exposure-behavior relationship in adolescents

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Abstract

Sexual and violent media content is prevalent, and adolescents exposed to this content may be more likely to enact risky sexual and aggressive behaviors. According to the Differential Susceptibility Model, dispositional traits, such as empathy, can predict risky media exposure and moderate the relationship between exposure and behavior. A total of 2,424 US adolescents (ages 14–17) participated in an online study that measured exposure to sex, violence, and their co-occurrence from the same character in a list of movies content analyzed for sex and violence. The survey outcomes of interest included adolescent sexual behavior, aggressive behavior, and both behaviors together, as well as empathy, which was included as a moderator. The exposure to movie character behavior was matched to adolescents' survey responses. Results show that empathy was a predictor of media exposure to sex and violence in movies, and as a moderator of the exposure-behavior relationship. The exposure-behavior relationship was moderated by empathy, such that empathy had an ameliorating effect on the exposure-behavior relationship, but did not negate it completely. This study furthers our understanding of how exposure to sexual and violent content in media, combined with individual differences, may play a role in adolescent enactment of risky behaviors.

Keywords

Adolescents; risky sex; violence; media; empathy

Adolescents watch more movies than any other age group – an average of 31 films per year (Nielsen, 2009). The content of the movies popular with adolescents commonly features sex and violence (Ellithorpe et al., 2017). Movies with sexual content can play a significant role in adolescents' sexual development (Coyne et al., 2019). Exposure to movie character behavior involving sex influences youth sexual activity, decreases contraception use, and increases sexual risk-taking behaviors (Wingood et al., 2001), such as engaging in sex at a young age (Brown et al., 2006; L'Engle, Brown, & Kenneavy, 2006). Individuals who have more frequent exposure to sexually oriented media have more casual attitudes about sex, which may impact their risk-taking behaviors such as choosing not to use birth control

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(Ward, 2003). Longitudinal research on exposure to sex content in media and later sexual behavior has found support for the directionality of influence from exposure to sex in media to risky sexual behavior (Hennessy et al., 2009; Coyne & Padilla-Walker, 2015), including one study that found those with the highest levels of sex content exposure were also significantly more likely to experience teen pregnancy (Chandra et al., 2008).

Violent content is also prevalent in US mainstream movies (Bleakley et al., 2012; Sargent et al., 2002) and violent movies characters consistently model other risk behaviors such as sex and alcohol use (Bleakley, Romer, & Jamieson, 2014). Research shows that violence in television and movies contributes to both a short-term and a long-term increase in aggression and violent behaviors in adolescent viewers (Anderson, Bushman, Donnerstein, Hummer, & Warburton, 2015; Huesmann & Taylor, 2006). Evidence also links violent media exposure during childhood to later physical assaults and spouse abuse (Anderson et al., 2003). Although the relationships between media use and youth behavior are to some extent mutually reinforcing, there is evidence supporting the conclusion that exposure to sex and violence in media does have at least some causal influence on behavior (Bushman & Anderson, 2015; Wright, 2011). For example, a longitudinal study controlling for variables such as initial aggression, socioeconomic status, and parenting factors find support for media violence exposure predicting later aggressive behavior (Huesmann, Moise-Titus, Podolski, & Eron, 2003). In addition, a longitudinal study comparing a socialization process (in which violent media influences later aggressive behavior) to a selection hypothesis (in which more aggressive adolescents select more violent media) they found support for socialization but not for selection (Willoughby, Adachi, & Good, 2012).

Exposure to multiple risk behaviors in movies, such as the occurrence of sex and violence in the same movie, may compound harmful risk-taking behaviors that adolescents enact as they model the behaviors of the movie characters. Consuming media that contains a co-occurrence of sex and violence together has been shown to result in adverse outcomes such as acceptance of rape myths and interpersonal violence against women (Emmers-Sommer, Pauley, Hanzal, & Triplett, 2006; Malamuth & Check, 1981). In addition, risk behaviors are often performed together, such as sexual activity and alcohol consumption (Hair, Park, Ling, & Moore, 2009). Exposure to the co-occurrence of onscreen sexual behavior and alcohol use in movies is associated with enacting the corresponding behavior (Bleakley et al., 2017b; O'Hara, Gibbons, Li, Gerrard, & Sargent, 2013) and more positive attitudes about combining alcohol and sex (Bleakley, Ellithorpe, & Hennessy, 2019; O'Hara, Gibbons, Li, Gerrard, & Sargent, 2013). Less work has been done around co-occurrence of sexual and violent content; however, an analysis of violence and sex in movies rated G and PG, including animated films, found that both sex and violence are prevalent in such films that are targeted toward children (Wolff, Rain, & Ray, 2019).

Theoretical frameworks

The DSMM addresses (a) why some individuals are more susceptible to media effects than others, b) how and why some media influence those individuals, and c) how media effects can be enhanced or counteracted by identifying three types of susceptibility relevant to media effects: dispositional, developmental, and social susceptibility. The focus of the

present study is on empathy as one type of dispositional susceptibility. Dispositional susceptibility is defined as “all person dimensions that predispose the selection of and responsiveness to media” including genetics, gender, temperament, personality, cognitions, values, attitudes, beliefs, motivations, and moods (Valkenburg & Peter, 2013) (p. 226). The DSMM predicts that the different susceptibility variables act as both primary predictors of media use, as well as moderators of the exposure-behavior relationship [see Figure 1 for a generic depiction].

While the DSMM describes relationships between media use and outcomes as they are influenced by individual factors, it does not clearly explain why media use and behavior are connected in the first place. Social Cognitive Theory (SCT; Bandura, 2001) is one explanatory theory for how media exposure influences behavior. The central premise of SCT is that individuals learn through social influence in dynamic interactions through viewing the behaviors and the consequences of those behaviors performed by others in particular contexts, including the media (Bandura, 1999, 2009). According to SCT, people are more likely to enact modeled behavior when they have high self-efficacy that they can perform the behavior, when the modeled behavior received positive consequences, when the model is perceived to be similar to the individual, when the model is perceived to be attractive, and when the environmental context of the individual is favorable to the behavior (Bandura, 2009).

Based on the combination of the DSMM and SCT, we hypothesize that increased exposure to risk content in movies will be associated with increased risky behavior in the relevant domain for adolescents. Specifically, that exposure to sex content will be associated with increased likelihood of risky sexual behavior, the exposure to violent content will be associated with increased likelihood of aggressive behavior, and that exposure to co-occurring sex and violent content will be associated with increased likelihood of both behaviors. This is consistent with previous research on the relationship between media risk exposure and adolescent behavior (e.g., Strasburger, 2010).

Importantly, as the DSMM predicts, we also hypothesize that individual empathy will act as both a predictor of risky media use in the first place and as a moderator of the relationship between risk exposure and behavior, such that empathy is a protective factor in both exposure and behavior. When it comes to behavior, a study found that an intervention based on positive youth development, in which empathy is one component, may protect against sex initiation and unprotected sex for adolescents who were already sexually active (Schwartz et al., 2010). In addition, studies have found negative correlations between empathy and sexual risk-taking behavior (Evans et al., 2004; Hart & Hilton, 1988). Women who use contraceptives also had greater empathy in their personal relationships (Hart & Hilton, 1988). For men, empathic relationships were found to be a protective factor against sexual risk-taking (Evans et al., 2004) and there is also evidence that empathy may act as a protective factor against aggressive behavior (Richardson, Hammock, Smith, Gardner, & Signo, 1994) such as physical aggression (Song et al., 2018). Additionally, in more than one study on the relationship between violent media exposure and aggressive and prosocial behavior, empathy mediated the exposure-behavior relationship (Bartholow, Sestir, & Davis, 2005; Mößle, Kilem, & Rehbein, 2014; Prot et al., 2014). This suggests

key role for empathy in the relationship between exposure to risk content in media and behavioral outcomes. However, the role of empathy in predicting risky media exposure is less well-studied. Theoretically, the nature of empathy would suggest those high in empathy would experience more distress and less enjoyment from media that is violent or highly sexual (Vossen, Piotrowski, & Valkenburg, 2017). Indeed, a study on affective responses to horror content found less enjoyment of portrayals of suffering among participants high in empathy (Hoffner, 2009). However, more research is needed to understand whether and under what circumstances empathy might predict media exposure.

Materials and Methods

Participants

The online survey company GfK recruited 2,432 adolescents from their online research panel to approximate a national U. S. sample. A small subset were recruited through their parents ($n=112$, 4.62%), with the rest recruited directly. All teens were given assent information before beginning the survey; those recruited through their parents had parental consent provided as well. Participants were compensated for their time by GfK. The survey procedures were approved by the IRB of the sponsoring institution.

A total of 2,424 participants were included in analysis after eight participants indicating a sex of “other” were removed. Participants were split approximately evenly by age: 14 years (21.5%), 15 years (25.7%), 16 years (24.8%), and 17 years (28.1%) and sex: female (48.1%) and male (51.9%). For this analysis, participants were split into the following racial groups: White (45.7%), Black or African American (43.7%), and other (10.6%). More details on these data can be found elsewhere (Bleakley et al., 2017a; Bleakley et al., 2017b; Bleakley et al., 2012; Ellithorpe et al., 2017).

Survey Measures

Content analysis.—The top 30 movies of 2014 according to *Variety* magazine were selected and coded in five-minute segments ($n=736$) for content portraying risk behaviors (Ellithorpe et al., 2017). Five coders used a directed, quantitative, previously-validated coding scheme (Bleakley, Jamieson, & Romer, 2012a; Bleakley, Romer, & Jamieson, 2014; Jamieson & Romer, 2008; Nalkur, Jamieson, & Romer, 2010) to code each movie. The coders achieved inter-coder reliability (Krippendorff’s $\alpha > .80$) using a separate, previously validated test sample of 59 segments before coding the films independently. Each segment was coded for whether a main character was involved in the portrayal of sex and/or violence. Sexual behavior was defined as any type of sexual contact, ranging from kissing on the lips to explicit intercourse (Krippendorff’s $\alpha=0.93$). Violence was defined as intentional acts to inflict injury or harm (Krippendorff’s $\alpha=0.94$). Sports aggression (e.g., tackling, boxing) was excluded. Co-occurring behaviors were defined as when the *same character* was coded as engaging in more than one risk behavior in a five-minute segment. There was not overlap between these categories; if an instance of sex or violence was included in a co-occurrence it was *not* included in the measure of sex or violence alone. Of the 30 movies, 20 contained at least one segment with sex only (total segments $n=43$), 29 contained at

least one segment with violence only (total segments $n=305$, and 10 contained at least one segment with both sex and violence enacted by the same character (total segments $n=21$).

Exposure to sex, violence, and their co-occurrence in movies.—Participants indicated how often they watched each of a list of movies in the past year. Responses were on a scale from 0 = Never, 1 = Once, or 2 = More than once. Exposure to each of sex and violence was separately calculated by multiplying the proportion of segments for each movie that contained sex and, separately, violence by each participant's self-reported exposure for the movie. Exposure to co-occurring sex and violence was operationalized by multiplying the proportion of segments for each movie that contained sex and violence by the same character by each participant's self-reported exposure for the movie and then the scores were summed across all movies and standardized using *z*-scores to create total scores of exposure to sex, violence and the co-occurrence of sex and violence in movies.

Risky sexual behavior.—Past sexual behavior in the current study was measured by asking participants two questions: “The last time you had sexual intercourse, did you or your partner use a condom?” and “The last time you had sexual intercourse, did you or your partner use hormonal birth control (the pill, patch, ring, shot, etc.)?” Response options included “Yes”, “No”, or “I have never engaged in sexual intercourse”. Participants who reported “never” to both questions were considered the “never sex” group ($n=1,735$, 71.58%). Condom and hormonal birth control (HBC) use were combined where “non-users” were classified as participants who responded that they did not use either condoms or HBC in their most recent sexual encounter ($n=140$, 5.78%), and “users” were participants who indicated using either form of birth control ($n=508$, 20.96%). The “never sex” group was considered to have no sexual risk, the “users” were considered to be slightly sexually risky given their age, and the “non-users” were considered to have high sexual risk. An additional 41 (1.69%) respondents were excluded from analyses involving this variable due to inconsistent reporting across the two questions (e.g., reporting never having had sex in the question about condom use, but answering “yes” to the question about HBC during the most recent sexual encounter).

Aggressive behavior.—To measure aggressive behavior, participants indicated the number of times they were in a physical fight in the past six months (Kann et al., 2014). Responses were on an eight-point scale, including: 0 times, 1 time, 2 or 3 times, 4 or 5 times, 6 or 7 times, 8 or 9 times, 10 or 11 times, and 12 or more times. Most respondents ($n=1,758$, 72.52%) reported zero fights; therefore, the measure was dichotomized to reflect those who reported zero fights compared to those who were involved in at least one fight ($n=664$, 27.39%).

Sexual and aggressive behavior.—Participants were grouped into 4 categories based on their responses to the sexual behavior and aggressive behavior measures. The separation of participants who did and did not use birth control created very small groups; therefore, birth control use was collapsed into a category of having sex compared to never having had sex for the purposes of the co-occurrence analyses. The following groups resulted: Never sex and no fights ($n=1,368$, 56.4%), yes sex and no fights ($n=375$, 15.5%), never sex and at least

one fight ($n=366$, 15.1%), and yes sex and at least one fight ($n=273$, 11.3%). An additional 42 (1.73%) were missing on this question due to their removal for inconsistency in the birth control questions (as described above).

Empathy.—Four questions were used to measure empathy on a dichotomous (i.e., yes/no) scale (Möbke, Kliem, & Rehbein, 2014). For example: “It troubles me when I see that someone is laughed at.” The total score was calculated for each participant by summing across the four items, providing a measure with a range from 0 to 4 ($M=3.41$, $SD=1.01$). However, the measure was highly skewed toward participants saying “yes” to all four questions; thus it was treated dichotomously with those with a score of four as one group ($n=1,603$, 66%) and those with a score of three or fewer as the other ($n=821$, 34%).

Sensation-seeking.—Sensation-seeking was used as a covariate in analyses due to its association with risk behavior. Sensation-seeking was measured using a four-item Brief Sensation Seeking Scale (Stephenson, Hoyle, Palmgreen, & Slater, 2003), which assesses four dimensions of experience seeking, boredom susceptibility, thrill/adventure seeking, and disinhibition (Khurana et al., 2019). An example item is “I like to do frightening things.” Response options ranged from 1 (strongly disagree) to 5 (strongly agree), $M=3.26$, $SD=1.00$, Cronbach $\alpha = .87$.

Television time.—Participants reported how many hours they spent watching television in three time periods the previous day: before noon, between noon and 6pm, and after 6pm. Because of the maximum in one day of 24 hours, responses greater than six hours for the time period between noon and 6pm ($n=41$, 2%) were recoded as 6 hours, and responses greater than nine hours were recoded as nine for the other two time periods (before noon $n=28$, 1%; after 6pm $n=15$, < 1%). Responses were then summed ($M=6.23$, $SD=4.96$). TV time was used as a covariate to account for the fact that adolescents who watch more television in general may be exposed to more risky content.

Statistical Analysis

Stata 14 was used for all analyses. Adjusted relative risk ratios and odds ratios are reported for multinomial (risky sexual behavior; sexual and aggressive behavior) and logistic analyses (aggression behavior), respectively. Generalized structural equation modeling was used to test the DSMM-based models including the moderation analyses due to its ability to handle multinomial and dichotomous outcome variables. Each model included participant sex, age, race (White as the comparison group), sensation seeking, and overall time spent using television as covariates. Dichotomized empathy was included as a predictor of exposure to the risky media content, and the interaction between risky media content and empathy then predicted engaging in sexual behavior and aggressive behavior [see Figure 1]. Marginal effects as part of the interactions between empathy and content exposure were investigated using the margins command in Stata following multinomial or logistic regression, as appropriate. Output files with full model results including covariates are available as supplemental material.

Results

Initial Analyses of Media Exposure and Behavior

Results from multinomial logistic regression suggest that exposure to sex content was associated with increased likelihood of engaging in both sexual behavior with condoms or HBC, $RRR=1.46$, $p<.001$, 95% CI (1.31, 1.63), and sexual behavior without condoms or HBC, $RRR=1.27$, $p<.01$, 95% CI (1.07, 1.52). However, no significant effects were found when comparing sex with and without condoms or HBC, $RRR=0.87$, $p=.15$, 95% CI (0.73, 1.05). This finding suggests that exposure to sex content was associated with an increased likelihood of having any sex, but not necessarily with an increased likelihood of riskier sex (as defined by sex without protection). Exposure to violent content was associated with an increased likelihood of reporting at least one physical fight in the past six months (vs. zero fights), $OR=1.50$, $p<.001$, 95% CI (1.36, 1.66).

The co-occurrence of sexual and aggressive behavior was operationalized as a four category measure, with no sex or aggression, sex only, aggression only, and both sex and aggression as the possible outcomes. When no risk behavior is the comparison group, exposure to co-occurrence segments was significantly associated with combined sex and aggressive behavior, $RRR=1.91$, $p<.001$, 95% CI (1.66, 2.21), engaging in sex only, $RRR=1.39$, $p<.001$, 95% CI (1.22, 1.59), and engaging in aggressive behavior only, $RRR=1.56$, $p<.001$, 95% CI (1.37, 1.77). This finding means that all three categories of risk behavior were associated with significant increased likelihoods, compared to no risk behavior, the more the participants were exposed to co-occurrence of sex and violent behaviors in media. In addition, co-occurring sex and aggression behavior was significantly higher in likelihood than the individual behaviors the more the participants were exposed to co-occurrence behavior seen in media [sex only, $RRR=1.37$, $p<.001$, 95% CI (1.17, 1.61); aggression, $RRR=1.22$, $p<.01$, 95% CI (1.05, 1.43)]. This finding indicates that exposure to co-occurring sex and violence in media was associated with higher likelihood of engaging in both sex and aggression, above and beyond just sex or just aggression alone.

Generalized Models

Detailed results from the generalized models can be found in Tables 1, 2, and 3.

Main effects.—Empathy was significantly associated with reduced exposure to sex content, and empathy was also significantly associated with reduced exposure to co-occurring sex and violence content. Empathy was not, however, significantly associated with exposure to violent content.

There were also direct effects of empathy on the outcome variables. Empathy was significantly associated with reduced likelihood of sexual behavior with condoms or HBC compared to no sex, and reduced likelihood of sexual behavior without condoms or HBC compared to no sex. It was also associated with reduced likelihood of sex without condoms or HBC compared to sex with condoms or HBC, indicating lower risky sex. Additionally, empathy was significantly associated with a reduced likelihood of aggressive behavior. There was a significant direct effect of empathy on likelihood of reporting both behaviors

as compared to no risky behaviors, on engaging in sex only compared to no risk, and on engaging in violence only compared to no risk.

Interaction effects.—There was a significant interaction between exposure to sex content and empathy on likelihood of having sex with a condom or HBC compared to never sex. As shown in Figure 2, those low in empathy demonstrated a stronger positive relationship between sex content exposure and sex behavior than those high in empathy, such that there was a significant difference in likelihood of engaging in sex when comparing the participants who were high and low empathy with the highest levels of sex exposure, $b=-0.38$, $p<.001$, 95% CI(-0.57, -0.19). However, both slopes remain significantly positive [low empathy $b=0.09$, $p<.001$, 95% CI(0.06, 0.11); high empathy, $b=0.03$, $p<.01$, 95% CI(0.01, 0.05)], indicating that while empathy is protective it does not completely negate the relationship between exposure to sex in media and sex behavior. In contrast, there was no significant interaction predicting likelihood of having sex without a condom or HBC compared to never sex, $b=-0.28$, $p=.11$, 95% CI (-0.61, 0.06), nor when comparing the sex with condoms/HBC to sex without condoms/HBC, $b=0.13$, $p=.46$, 95% CI (-0.21, 0.48). This finding again suggests that exposure to sex content was associated with increased likelihood of having sex in general, but not necessarily increased likelihood of riskier sex as defined as sex without protection. Empathy was not a moderator of the relationship between exposure to violence segments and violent behavior.

A significant interaction was found between empathy and exposure to co-occurrence segments on likelihood of reporting co-occurring behaviors as compared to no risky behaviors. There was also a significant interaction between empathy and exposure to the co-occurrence segments on engaging in sex only. There was no significant interaction between empathy and exposure to the co-occurrence segments on engaging in aggressive behavior only. These results mirror those of the individual-level interactions – empathy moderated the relationship between media exposure and sexual behavior, but not aggressive behavior. The pattern of effects (Figure 3) was similar to the previous interaction predicting sex behavior alone. When comparing the co-occurrence behavior to no risky behavior, those low in empathy demonstrated a stronger positive relationship between co-occurrence content exposure and co-occurrence behavior than those high in empathy, such that there was a significant difference in likelihood of engaging in sex and aggression when comparing the participants who were high and low empathy with the highest levels of co-occurrence exposure, $b=-0.23$, $p<.05$, 95% CI(-0.43, -0.03). However, both slopes remained significantly positive [low empathy $b=0.06$, $p<.001$, 95% CI(0.04, 0.08); high empathy, $b=0.03$, $p<.001$, 95% CI(0.02, 0.04)], indicating again that, while protective, empathy did not completely negate the relationship between risky media exposure and behavior.

Discussion

Previous research demonstrates that risky behaviors often occur simultaneously (Hair et al., 2009), and co-occurring exposure of some risky behaviors, such as alcohol and sex, has been associated with adolescent enactment of similar behavior (Bleakley et al., 2017b; O'Hara et al., 2013). Results from the current study indicate that exposure to characters that

portray both sex and violence combined are significantly associated with higher likelihood of engaging in both sexual and aggressive behavior. Importantly, when examining exposure to media with co-occurring instances of sex and violence, greater exposure has a stronger association with engaging in both sexual behavior and aggressive behavior than either of these behaviors individually.

In addition to the co-occurrence behaviors, the present study was consistent with work on the impact of exposure to sex and violence alone on each corresponding behavior. However, the findings presented here suggest that exposure to sex content is not necessarily associated with a reported likelihood of sex without protection. This finding indicates that exposure to sexual content in this sample was only associated with sexual behavior in general, and not necessarily riskier sex. It may be that sexual content in movies is likely to influence adolescent sexual behavior, but other contextual factors may influence sex behavior and risky choices such as others' expectations and pressure to not use contraceptives (L'Engle et al., 2006). We also found that exposure to violent content was associated with increased aggression, which is also consistent with research on violence in television and movies that indicate short-term and long-term increases in aggression and violent behaviors in adolescent viewers during childhood as well as into adulthood (Anderson et al., 2003; Huesmann & Taylor, 2006). The findings presented here further support these previous findings.

Social Cognitive Theory (SCT) predicts that exposure to modeled risky behavior in media can lead to enactment of that risk in actual behavior (Bandura, 2001). In addition, the Differential Susceptibility Model (DSMM) assumes that specific individual factors can impact both likelihood of exposure to media-risk content and the influence of such content on behavior (Valkenburg & Peter, 2013). Empathy was selected as the dispositional trait of interest in the present analyses based on previous research linking it to both sex and aggressive behaviors (Evans et al., 2004; Hart & Hilton, 1988). Our results found continued support for the role of empathy as a protective factor in sexual behavior, both alone and when co-occurring with aggressive behavior. However, while empathy was associated with reduced aggressive behavior directly, it did not moderate the relationship between exposure to media violence and aggressive behavior. Empathy was also a predictor of lower exposure to sexual media content, as well as the co-occurrence of sex and violence in media. It was not, however, a predictor of lower exposure to violent content. This is consistent with previous research that tested the selection hypothesis against the socialization hypothesis in media violence contexts (Krahé & Möller, 2010; Vossen et al., 2017; Willoughby et al., 2012). Based on these results, empathy likely plays a dual role in media effects on adolescent sexual behavior, both as a predictor of media exposure and as a moderator of the exposure-behavior relationship. However, its role in media effects in the context of aggressive behavior alone (not co-occurring with sex behavior) is less clear.

Limitations and Future Research

Adolescents self-reported their sexual and aggressive behavior, therefore social desirability may have played a role in reporting or participants may have misremembered whether they used a condom recently and/or there might be a telescoping effect. Or, perhaps there was

less impact of exposure and empathy on birth control or contraception use because these are dyadic behaviors. Regardless, the impact of media exposure to sexual behavior appears to have influence only on sexual activity overall, and not necessarily whether that sexual activity is with or without protection. This also meant that only sexual behavior overall, and not risky sex, was included in the co-occurrence measure. Future research should further examine the distinction between protected and unprotected sexual behavior.

The data in the present study are cross-sectional, meaning that causal order cannot be ascertained. There is strong theoretical reason based in the DSMM (Valkenburg & Peter, 2013) to believe that there is at least some causation in the direction from empathy to media exposure and from media exposure to behavior. Other reviews of the research in the area of media effects on both sexual behavior (Wright, 2011) and aggressive behavior (Bushman & Anderson, 2015) have found support for the conclusion that there is at least some causality in the direction from media exposure to behavior, in addition to many individual studies using longitudinal methods (e.g., Bleakley et al., 2009; Huesmann et al., 2003; Willoughby et al., 2012).

The measure of sexual behavior simply examined engaging in sex as risk and contraceptive use/non-use as a proxy for increased risky behavior. There are other sexual-risk behaviors that were not considered here that future research should consider such as multiple partners or engaging in sex at an early age. In addition, the measurement of violence was limited to engaging in a physical fight in the past six months, which is a narrow assessment and likely does not capture all forms of aggression that are important in this context. It is possible that this measurement issue could have contributed to the lack of findings regarding empathy in predicting aggressive behavior alone.

Finally, the operationalization of the co-occurrence of sex and violence was not a direct match when considering content and behavior. The co-occurrence as coded in media content involved both sex and violence within the same five-minute segment – indicating a close alignment of the behaviors within the same context. Adolescent behavior, however, was a global measure – whether they had had sex or been in a fight in the recent past, but was not a specific measure of sexual violence. This decision was due to ethical and Institutional Review Board concerns about asking adolescents about experiences of sexual trauma. In terms of the coding, four out of 28 segments containing a co-occurrence of sex and violence were coded specifically as sexual violence; this is too small a proportion to statistically examine in the present study. These behaviors may not have occurred within the same or even close contexts. Therefore, it is possible that the dissimilarity in type of behaviors affected results. However, it should be noted that greater correspondence between media content and behavior assessed should, if anything, strengthen the relationship between exposure and behavior.

Conclusion

Adolescents may be particularly susceptible to the influence of movie character behavior, and the findings here suggest that exposure to sex and violence in movies is associated with adolescent reports of similar behaviors. Exposure to co-occurring sex and violence

predicted not only the individual behaviors of sex and aggression, but also predicted whether adolescents reported engaging in both sexual behavior and violence. Furthermore, empathy moderated the relationship between exposure and behavior in adolescents, such that increased empathy had an ameliorating effect on the exposure-behavior relationship, but did not negate it completely. Empathy also was associated with less exposure to risky sex content and co-occurring sex and violence content in the first place, indicating a dual protective role for this trait variable. Interventions encouraging empathy have already been demonstrated to be effective in reducing risky sexual behavior and aggressive behavior (Day, Casey, & Gerace, 2010; Donohew et al., 2000); these results suggest that such interventions may also help in contexts where media exposure is a driving factor. These results highlight the need to understand how disposition and other traits affect media influence and media selection. They also reinforce the importance of considering how behaviors are co-occurring with one another onscreen and the subsequent effects of exposure to multiple risk portrayals.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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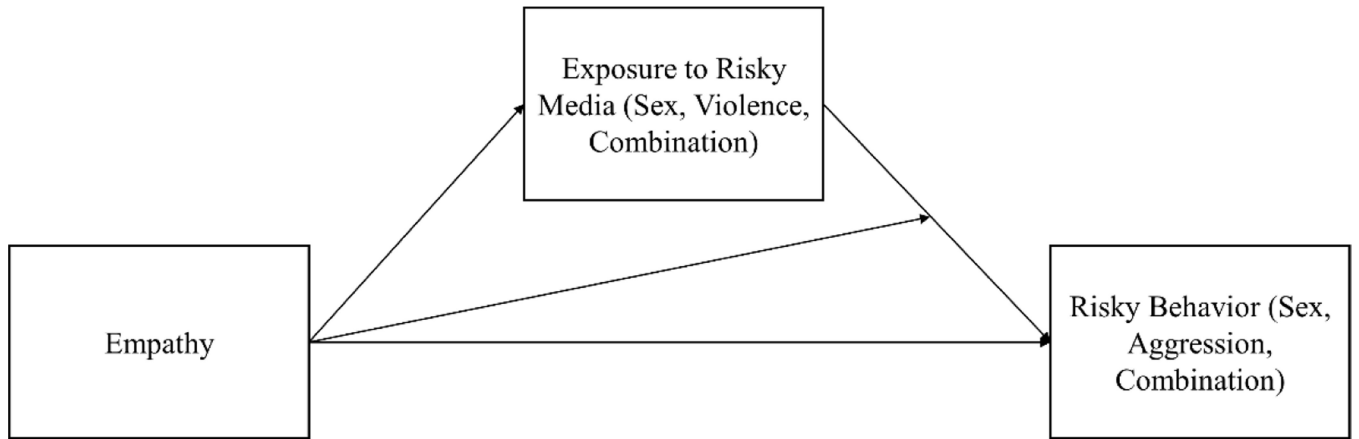


Figure 1. Generic model. Empathy predicts risky media exposure, and also moderates the relationship between risky media exposure and risky behavior.

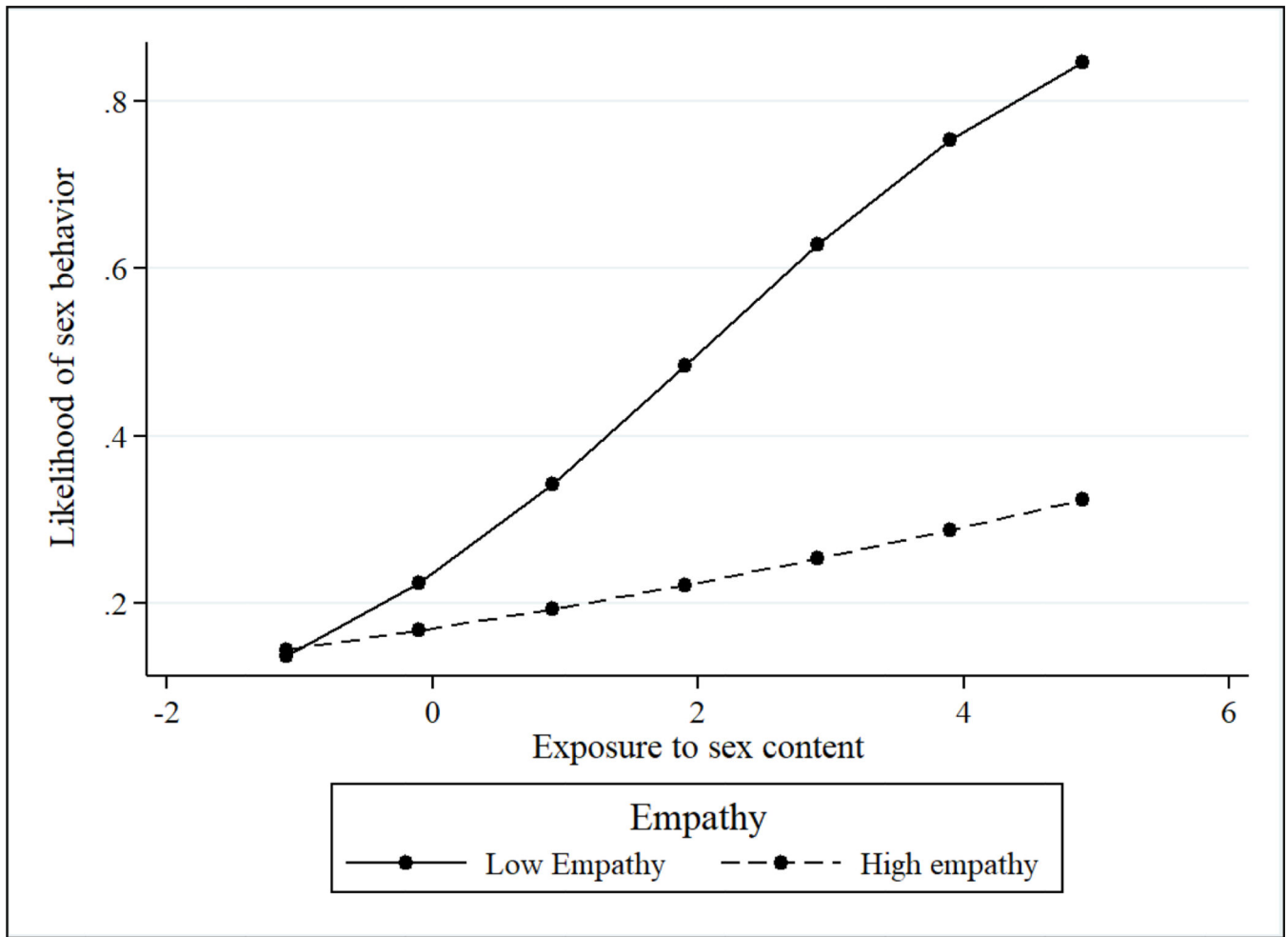


Figure 2. Interaction between exposure to sex content and empathy predicting likelihood of engaging in sex with protection as compared to no sex behavior. As exposure to sex content increases, the likelihood of sex behavior increases, but especially for those low in empathy.

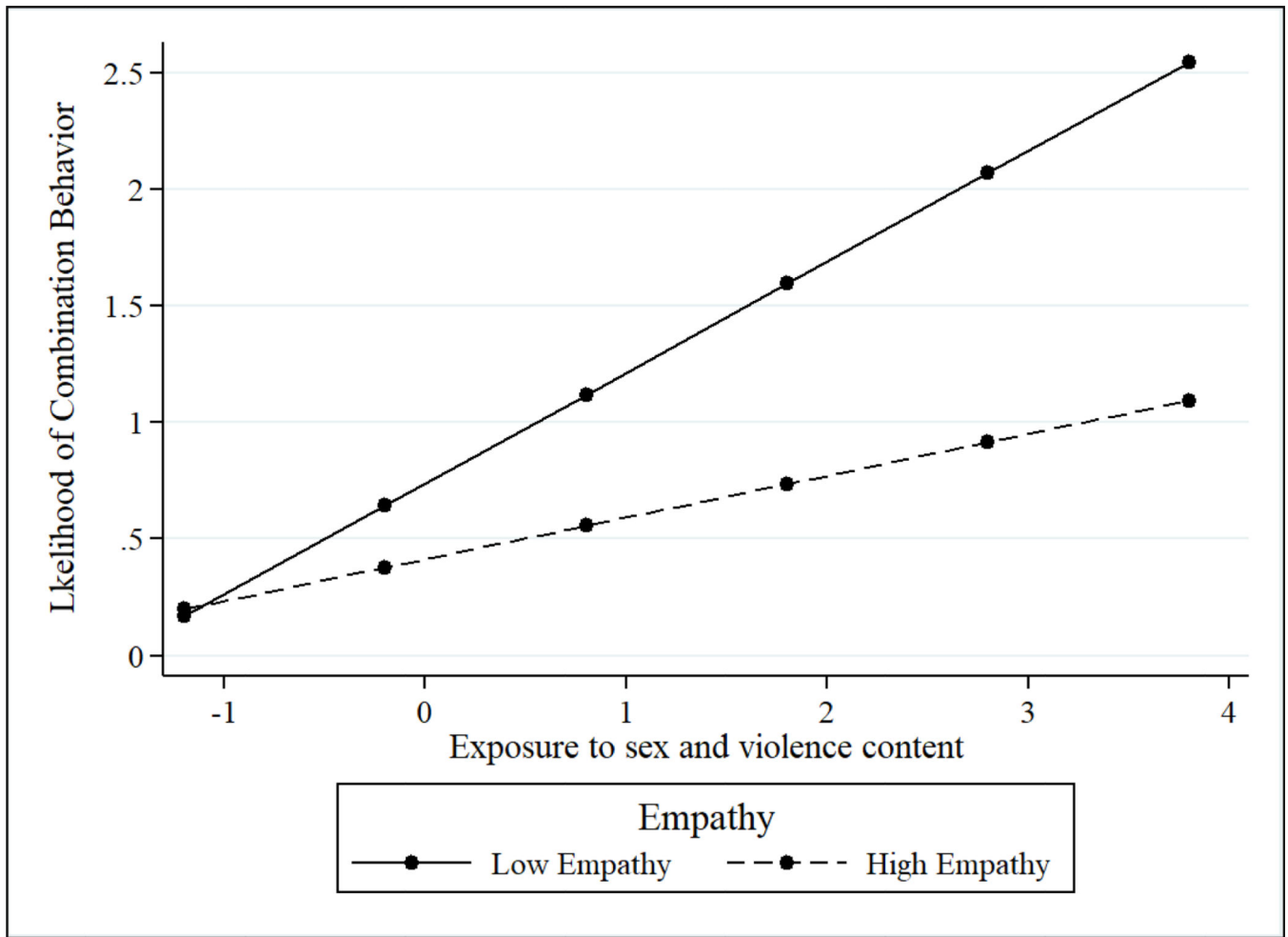


Figure 3. Interaction between exposure to sex and violence content and empathy predicting likelihood of engaging in sex and aggression as compared to neither behavior. As exposure to sex and violence combination content increases, the likelihood of sex and aggression behavior increases, but especially for those low in empathy.

Table 1.

Generalized structural equation path model results predicting sex media content exposure and sex behavior. Coefficients reported are unstandardized. For ease of interpretation coefficients are bolded when significant at least $p < .05$.

	Exposure to sex content		Sex with BC (no sex comparison)		Sex without BC (no sex comparison)		Sex without BC (sex with BC comparison)	
	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI
Media sex exposure	--	--	0.62	0.45, 0.79	0.39	0.15, 0.63	-0.23	-0.47, 0.02
Empathy	-0.10	-0.18, -0.02	-0.35	-0.58, -0.12	-0.82	-1.18, -0.45	-0.47	-0.86, -0.07
Sex exp* empathy	--	--	-0.41	-0.62, -0.20	-0.28	-0.61, 0.06	0.13	-0.22, 0.48
Age	0.05	0.01, 0.08	0.64	0.54, 0.75	0.20	0.04, 0.36	-0.44	-0.62, -0.26
Sex	0.06	-0.01, 0.13	-0.42	-0.64, -0.20	-0.26	-0.62, 0.09	0.16	-0.23, 0.55
Race (White comparison)								
Black	0.56	0.48, 0.64	-0.27	-0.51, -0.03	-0.00	-0.40, 0.40	0.27	-0.16, 0.70
Other	0.14	0.02, 0.27	0.01	-0.36, 0.37	0.35	-0.20, 0.91	0.35	-0.26, 0.96
Sensation seeking	0.11	0.07, 0.15	0.41	0.30, 0.53	0.24	0.05, 0.43	-0.17	-0.38, 0.03
TV Time	0.05	0.04, 0.06	0.03	0.00, 0.05	0.02	-0.02, 0.06	-0.01	-0.05, 0.03

Table 2.

Logistic regression results predicting violent media content exposure and aggressive behavior. Coefficients reported are unstandardized. For ease of interpretation coefficients are bolded when significant at least $p < .05$.

	Exposure to violent content		Aggressive behavior	
	<i>OR</i>	95% CI	<i>OR</i>	95% CI
Media violence exposure	--	--	0.37	0.23, 0.52
Empathy	-0.05	-0.13, 0.04	-0.58	-0.78, -0.38
Media exp* empathy	--	--	0.05	-0.14, 0.24
Age	-0.02	-0.05, 0.02	0.01	-0.08, 0.09
Sex	-0.14	-0.22, -0.06	-0.55	-0.74, -0.35
Race (White comparison)				
Black	0.31	0.23, 0.39	0.19	-0.01, 0.40
Other	0.19	0.06, 0.32	0.14	-0.18, 0.46
Sensation seeking	0.12	0.08, 0.15	0.32	0.22, 0.42
TV Time	0.05	0.04, 0.06	0.03	0.01, 0.05

Table 3.

Multinomial logistic regression results predicting co-occurring sex and violent media exposure and sex and aggression behavior. Coefficients reported are unstandardized. For ease of interpretation coefficients are bolded when significant at least $p < .05$.

	Co-occurring sex and violence media exposure		Sex only (no risk comparison)		Aggression only (no risk comparison)		Sex and aggression (no risk comparison)	
	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI
Media sex & violence exp.	--	--	0.67	0.45, 0.89	0.44	0.22, 0.65	0.90	0.68, 1.13
Empathy	-0.09	-0.17, -0.01	-0.54	-0.81, -0.28	-0.66	-0.92, -0.41	-0.76	-1.06, -0.45
Media exp* empathy	--	--	-0.54	-0.81, -0.27	0.04	-0.21, 0.31	-0.37	-0.65, -0.09
Age	0.04	0.00, 0.07	0.67	0.55, 0.79	-0.01	-0.12, 0.11	0.36	0.23, 0.49
Sex	-0.09	-0.16, -0.01	-0.29	-0.54, -0.04	-0.56	-0.81, -0.31	-0.79	-1.08, -0.50
Race (White comparison)								
Black	0.40	0.32, 0.48	-0.31	-0.58, -0.04	0.00	-0.26, 0.26	0.03	-0.28, 0.34
Other	0.12	-0.01, 0.25	0.02	-0.39, 0.43	0.11	-0.30, 0.51	0.29	-0.18, 0.76
Sensation seeking	0.12	0.08, 0.16	0.43	0.30, 0.56	0.38	0.25, 0.50	0.51	0.36, 0.66
TV Time	0.05	0.04, 0.06	0.03	0.00, 0.05	0.03	0.01, 0.06	0.04	0.02, 0.07