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A different(ial) perspective: How social context influences the media violence-aggression relationship among early adolescents

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This chapter has been submitted for publication.



Chapter 4

A matter of style?
The differential effects of
parental mediation on early
adolescents' media violence
exposure and aggression

ABSTRACT

This study investigated the effects of different styles (autonomy-supportive, controlling, or inconsistent) of restrictive and active parental mediation on adolescents' media violence exposure and aggression. Using data from a two-wave longitudinal survey among 942 adolescents (10 to 14 years; 50.3% girls), results indicate that restrictive mediation communicated in an autonomy-supportive style was cross-sectionally related to decreased media violence exposure and aggression. Alternatively, inconsistent restrictive mediation was cross-sectionally related to increased media violence and aggression. No longitudinal relationships were found for any restrictive mediation styles. Active mediation did not moderate the relationship between media violence exposure and aggression – regardless of the style used. Findings suggest that autonomy-supportive restriction may be an effective route for parents who are concerned about their child's media violence exposure and aggressive behavior.

A matter of style? The differential effects of parental mediation on early adolescents' media violence exposure and aggression

When it comes to adolescents' use of violent television and violent games, many parents are concerned about the potential adverse consequences of such media content on their children's aggressive behavior (Rideout, 2007). Indeed, a number of studies have shown that media violence is positively related to aggression (for a review, see Krahé, 2014a), although there is also research to suggest that no such relationship exists (for a review, see Elson & Ferguson, 2014b). Parents who wish to prevent or reduce the potential negative consequences of media violence exposure often use one of two media mediation strategies: restrictive and active mediation (Nikken & Jansz, 2006; Valkenburg, Krömer, Peeters, & Marseille, 1999). In the case of restrictive mediation, parents establish rules about the time and/or content of media youth can consume. With active mediation, they discuss the acceptability and realism of media violence with their children.

Although research investigating the effectiveness of these two parental mediation strategies provides encouraging results, the evidence as to whether parental mediation may actually reduce aggression as a potential outcome of media violence is both limited and inconsistent. Restrictive mediation effects on aggression have only been found in two survey studies (Gentile, Reimer, Nathanson, Walsh, & Eisenmann, 2014; Nathanson, 1999), but convincing longitudinal evidence is still lacking. Active mediation effects on aggression have been studied in one survey study (Nathanson, 1999) and five experiments (Grusec, 1973; Hicks, 1968; Mattern & Lindholm, 1985; Nathanson & Cantor, 2000; Nathanson, 2004), which together have provided mixed results as to whether active mediation can effectively reduce any relationship between media violence and aggression.

A recently proposed explanation for the inconsistent findings in the parental mediation literature is that research has not considered the *style* in which parental mediation is communicated towards youth (Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013). The parenting literature indicates that certain parenting styles more successfully promote internalization of values and regulations than other parenting styles (e.g., Darling & Steinberg, 1993; Joussemet, Landry, & Koestner, 2008). For example, autonomy-supportive parenting has been related to successful internalization of regulations and positive child outcomes, whereas controlling and inconsistent parenting styles are related to adverse outcomes (Gardner, 1989; Joussemet et al., 2008). Valkenburg and colleagues argue that parental media mediation (a domain-specific form of parenting) is no different. Here, too, restricting or actively discussing

violent media content could result in children accepting and following parental guidance when communicated in an autonomy-supportive way, but the same strategies may result in no or reverse outcomes when communicated in a controlling or inconsistent way (Valkenburg et al., 2013).

There is currently no evidence to indicate that different styles of restrictive and active mediation are more or less successful in preventing or reducing the potential effects of media violence on adolescents' aggression. Therefore, the aim of this study was to investigate the effectiveness of autonomy-supportive, controlling, and inconsistent styles of restrictive and active mediation in this process. Considering that most of the current research investigating the effects of parental mediation on aggression consists of cross-sectional surveys (Gentile et al., 2014; Nathanson, 1999) or short-term experiments (Grusec, 1973; Hicks, 1968; Mattern & Lindholm, 1985; Nathanson & Cantor, 2000; Nathanson, 2004), it is unclear whether those findings remain over time as well as whether they translate to more naturalistic settings. To address these gaps, we conducted a one-year longitudinal study among 10- to 14-year-old early adolescents to investigate whether the style of parental mediation matters in reducing media violence-induced aggression.

Parental mediation, media violence, and aggression

Restrictive and active mediation are the two most common strategies parents use when it comes to violent television and violent games (Nikken & Jansz, 2006). Both strategies reflect the underlying concern that media violence may increase children's aggressive behavior. Theoretically, media violence has been conceptualized as a modeling influence from which children may learn that aggressive behavior is acceptable, especially when violence in media is rewarded and conducted by attractive characters (Anderson & Bushman, 2002; Bandura, 2009). Meta-analyses show that there is a small positive relationship between media violence exposure and aggressive behavior (Anderson et al., 2010; Ferguson & Kilburn, 2009; Greitemeyer & Mügge, 2014), although researchers differ in their interpretation of these findings (Bushman, Rothstein, & Anderson, 2010; Ferguson & Kilburn, 2010). Still, the main motivation of many parents for mediating their children's violent media use is based on concerns about negative media effects (Nathanson, 2001; Nikken & Jansz, 2006).

Restrictive and active mediation represent two ways of managing the concern that children may learn about aggression from violence on television and in games. Restrictive mediation reflects the assumption that aggression may (at least partly) be reduced or prevented if children are given less or no opportunity to learn from violent media content. Thus, the conceptual role of restrictive mediation is to reduce media

violence exposure, which may subsequently reduce aggressive behavior. Two studies have investigated this relationship. In a cross-sectional survey, Nathanson (1999) showed that restrictive mediation was related to less aggressive tendencies among children. However, this study did not investigate whether children's exposure to violent television mediated this relationship, that is, whether restrictive mediation reduced aggression *via* reduced media violence exposure. Gentile et al. (2014) did investigate this conceptual path in a survey on effects of "parental monitoring" (an amalgam of nine limit-setting items and two active discussion items). The authors found that parental monitoring was cross-sectionally related to reduced media violence exposure, which, in turn, was related to reduced aggression six months later. However, because baseline aggression was not controlled for in this longitudinal analysis, it is difficult to assess whether restrictive mediation at Time 1 actually *reduced* aggression *via* media violence exposure.

Whereas the conceptual role of restrictive mediation is to prevent the learning of aggression from violent media, the conceptual role of active mediation is to influence what children take away from violent media when they do consume it. For example, parents can tell their children that violence in the media is not okay or cool ("evaluative mediation") or emphasize that violence in the media is different than in real life ("factual mediation;" Nathanson, 2004). The (implicit) assumption is that providing a counter culture may help children to become critical consumers of media and that, as a consequence, they will become less susceptible to the potential effects of media violence on aggression (Cantor & Wilson, 2003).

Although several studies have shown that active mediation can indeed change children's perceptions of media violence (e.g., Nathanson & Cantor, 2000; Nathanson, 2004; Rasmussen, 2014), the evidence for a subsequent reduction in aggression is less consistent. Nathanson's (1999) cross-sectional survey reports a negative relationship between active mediation and children's general aggressive tendencies. However, in an experiment in which some children received active mediation and others did not, Nathanson (2004) did not find that aggression was reduced among children who received active mediation. Other experiments only found such reductions in subsamples, such as only among boys (Mattern & Lindholm, 1985; Nathanson & Cantor, 2000), only among 10-year-olds but not 5-year-olds (Grusec, 1973), or only when the experimenter delivering the active mediation was present when observing children's aggression (Hicks, 1968). Thus, it seems that whether active mediation is an effective strategy to decrease media violence-induced aggression is still an open question.

Styles of parental mediation

There are two possible explanations for why the evidence for parental mediation (particularly active mediation) is inconsistent. First, although the existing experiments certainly provide relevant information about whether, with which content, and in which form active mediation may reduce aggressive outcomes in children, they lack ecological validity. Although this is a general limitation of experimental research, it is particularly relevant in the context of parental mediation. At its core, parental mediation is “media-related parenting” (Valkenburg et al., 2013, p. 461), and parenting is a process that takes place in a specific family context and is aimed at children’s long-term internalization of values and regulations (Joussemet et al., 2008). In addition, most psychologists see social behaviors like aggression as a product of long-term socialization processes throughout childhood (Crick & Dodge, 1994). It is perhaps not strange, then, that short-term experiments in which an experimenter delivers an active mediation message are not consistently successful. In order to detect effects of parental mediation on aggression, methods which are sensitive to the social context and prolonged process required for parental mediation are needed.

A second explanation for the inconsistent findings in previous parental mediation research is that these studies have not taken into account the *style* in which the restrictive or active mediation was presented (Valkenburg et al., 2013). The parenting literature has identified different parenting styles that can be more or less successful in supporting children’s socialization. For example, Self-Determination Theory (SDT, Ryan & Deci, 2000) proposes that socialization is more likely to be successful when parents transmit values and regulations in a way that supports the autonomy of the child. Autonomy-supportive parenting involves providing a rationale for parental regulations and recognizing the perspective of the child, and is related to a range of positive child outcomes (Joussemet et al., 2008). Autonomy-supportive parenting is often contrasted with controlling parenting, which involves pressuring children to think and behave in certain ways through for example guilt induction and punishment, and has been related to externalizing and internalizing problems in children (Soenens & Vansteenkiste, 2010). Similarly, inconsistent application of rules by parents has been linked to children’s conduct problems (Gardner, 1989). If parents are sometimes strict and at other times acquiesce to their child, they may “enter a “reinforcement trap” where short-term gains (e.g., peace and quiet) are bought at the cost of strengthening the child’s difficult behavior” (Gardner, 1989, p. 225). In short, different styles of parenting have different effects on internalization of values and regulations by children.

As a domain-specific form of parenting, parental media mediation is no different. Here, too, parents can apply restrictive and active mediation in a way that is autonomy-

supportive, controlling, or inconsistent (Valkenburg et al., 2013). In fact, the style of parenting may matter even more in the realm of media use. For older children and adolescents, media use is part of their personal domain and, as such, parental authority in this domain is increasingly perceived as illegitimate (Smetana, 1995; Valkenburg et al., 2013). As a consequence, if parents attempt to “interfere” in this personal domain, adolescents may experience psychological reactance, a motivational state directed towards restoration of the threatened behavior (Brehm & Brehm, 1981). In order to restore their freedom, teens may engage in the restricted act or increase their liking for the restricted behavior (Dillard & Shen, 2005). In both cases, parental mediation is likely to result in effects opposite to those intended by parents (i.e., boomerang effects). Valkenburg et al. (2013) propose that whereas controlling and inconsistent parental mediation may promote such boomerang effects, autonomy-supportive parental mediation may be a way to circumvent them.

Restrictive mediation styles

Restrictive mediation can be presented in an autonomy-supportive, controlling, or inconsistent style. Autonomy-supportive restriction is defined as posing regulations about time with or content of media while also providing a rationale for these regulations and listening to the child’s perspective (Valkenburg et al., 2013). Although this strategy still involves restricting a child’s media use, the autonomy-supportive style is expected to promote internalization of regulations by the child and circumvent reactance. This would then successfully result in reduced media violence exposure and subsequent aggression. Controlling restrictive mediation is defined as forbidding or restricting media use by getting angry or threatening to punish the child (Valkenburg et al., 2013). Because this is an infringement of the child’s autonomy in a domain in which parental authority may already be questioned, controlling restriction is more likely to result in reactance such that youth may try to reinstate their freedom by doing the forbidden act (i.e., consuming violent media). Lastly, inconsistent restrictive mediation is defined as “parents’ tendency to be erratic and unpredictable in their restriction” of media content or time (Valkenburg et al., 2013, p. 450). Inconsistent restriction teaches a child that he or she can get their way by engaging in conflict with parents about a restricted behavior, which can thwart internalization of regulations on the part of the child (Gardner, 1989). As a consequence, this style of restrictive mediation is more likely to lead to an increase than a decrease in media violence exposure.

Although not investigating different styles specifically, a number of studies support the idea that restrictive mediation may evoke resistance in youth and result in boomerang effects (Byrne & Lee, 2011; Nathanson, 2002; Nije Bijvank, Konijn,

Bushman, & Roelofsma, 2009). Gentile and Walsh (2002) report a negative correlation between consistency of applying parental rules for media and children's general television use, suggesting a boomerang effect of inconsistent restrictive mediation. In addition, Valkenburg et al. (2013) validated their parental mediation scale by showing that the three restrictive mediation styles correlated in the expected directions with aggressive behavior: Autonomy-supportive restriction was cross-sectionally related to less aggressive behavior, whereas controlling and inconsistent restriction both positively correlated with aggression. Similarly, a cross-sectional study by Nikkelen, Vossen, Piotrowski, and Valkenburg (2015) showed that autonomy-supportive restriction correlated with less media violence exposure and inconsistent restriction with more media violence exposure among early adolescents. For controlling restriction, a small negative relationship with media violence exposure was found. In the current study, we extend this body of research on restrictive mediation by investigating both the cross-sectional and longitudinal effects of these three restrictive mediation styles on media violence exposure and subsequent aggression. We pose the following three hypotheses related to restrictive mediation styles (visualized in the upper panel of Figure 1):

Hypothesis 1 (H1): Autonomy-supportive restrictive mediation is related to a decrease in aggression via a decrease in media violence exposure (a) cross-sectionally and (b) longitudinally.

Hypothesis 2 (H2): Controlling restrictive mediation is related to an increase in aggression via an increase in media violence exposure (a) cross-sectionally and (b) longitudinally.

Hypothesis 3 (H3): Inconsistent restrictive mediation is related to an increase in aggression via an increase in media violence exposure (a) cross-sectionally and (b) longitudinally.

Active mediation styles

Active mediation can be communicated by parents in either an autonomy-supportive or a controlling style (inconsistent active mediation, being more or less a *contradictio in terminis*, was not further developed by Valkenburg et al.). The conceptual role of active mediation is to encourage children to take a more critical view of media and thereby reduce its potential negative effects. Thus, what parents attempt to change through active mediation is not the violent media use itself, but rather the perceptions of such

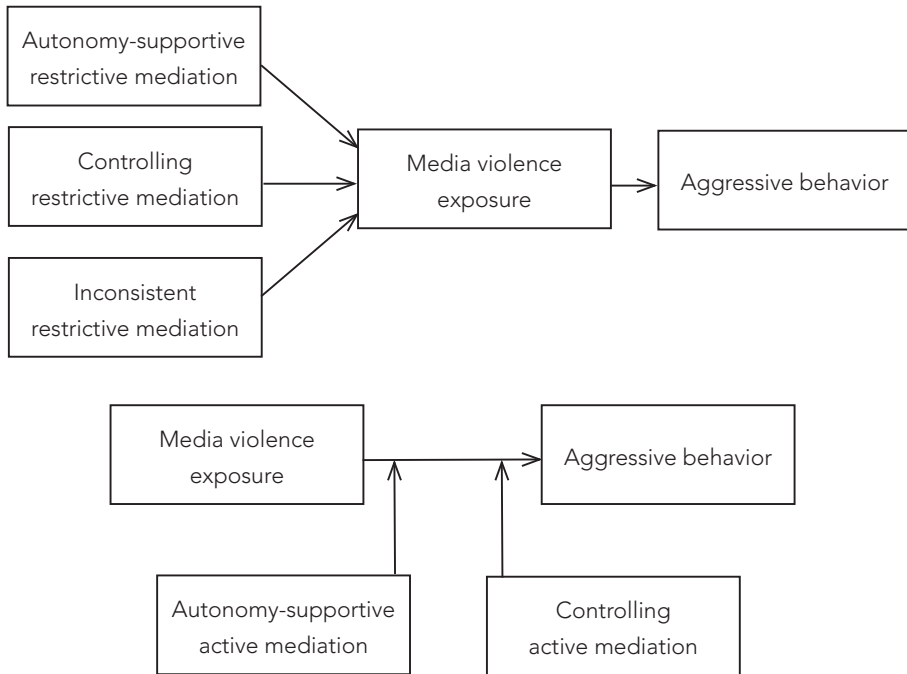


Figure 1 Conceptual models of the different roles of restrictive and active mediation styles in the relationship between media violence exposure and aggression.

media and the behavior on display. The two active mediation styles may affect these learning processes in opposite ways. Autonomy-supportive active mediation is defined as discussions with children about media use in which parents provide rationales for their viewpoints and are open to their child's opinion (Valkenburg et al., 2013). Again, because such a parenting style is more successful in achieving children's socialization (Joussemet et al., 2008), it is likely that autonomy-supportive active mediation will result in children accepting and internalizing these viewpoints. This may then make them less susceptible to the potential effects of media violence on aggression. On the other hand, controlling active mediation (parent-child discussions in which the child's perspective does not count) threatens the child's freedom to have their own thoughts and opinions about violent media. When parents strongly voice their opinion about violent media – a form of entertainment often enjoyed by youth (Jansz, 2005) and a part of their life where parental authority is perceived as illegitimate (Smetana, 1995) – this is more likely to result in reactance. One way in which adolescents can reinstate their

freedom is to like violent media content more (Dillard & Shen, 2005) and see violent media as fun, realistic, and “not that big of a deal.” Given that such perceptions are exactly the theoretical mechanisms proposed to promote effects of media violence on aggression (Bandura, 2009; Carnagey, Anderson, & Bushman, 2007), active mediation that is communicated in a controlling way is likely to result in boomerang effects.

There is little empirical evidence for the role of autonomy-supportive and controlling active mediation as moderators of the media violence-aggression relationship. Of the existing experimental studies into active mediation effects, none have investigated how different styles may moderate a potential relationship between media violence exposure and subsequent aggression. Thus, this study investigated whether autonomy-supportive and controlling active mediation may weaken or strengthen a relationship between media violence and early adolescents’ aggression, cross-sectionally as well as over time. We pose the following two hypotheses related to active mediation styles (visualized in the lower panel of Figure 1):

Hypothesis 4 (H4): Autonomy-supportive active mediation weakens the relationship between media violence exposure and aggressive behavior (a) cross-sectionally and (b) longitudinally.

Hypothesis 5 (H5): Controlling active mediation strengthens the relationship between media violence exposure and aggressive behavior (a) cross-sectionally and (b) longitudinally.

METHOD

Participants and procedure

After receiving approval from the sponsoring institution’s Institutional Review Board, a large, private survey research institute in the Netherlands (TNS NIPO/Veldkamp) collected the data. Families were recruited through TNS NIPO’s existing online panel of approximately 60,000 households that is representative of the Netherlands. All households with at least two children between 10 and 14 (1,565 families in the panel) were invited to participate, of which 516 families participated. Data collection consisted of two waves, and took place in the adolescents’ homes where they filled out a questionnaire on a laptop. The first wave of data collection was conducted between September and December 2012; the second wave was conducted between September and December 2013. Data collection procedures were identical for both

waves. A total of 1,029 early adolescents participated in wave 1, and 942 adolescents participated again in wave 2. These 942 respondents made up the final sample, which consisted of 99.6% sibling pairs; 50.3% girls; mean age at Time 1 = 11.8, $SD = 1.4$ years.

Measures

Parental media mediation

Parental media mediation was measured using the Perceived Parental Media Mediation Scale, which has been found reliable and valid for early adolescent samples (Valkenburg et al., 2013). This scale consists of eight main items that measure the frequency of restrictive and active parental mediation. Each of the four main restrictive mediation items is followed by three follow-up items that measure *how* adolescents' parents restrict their media use: (1) autonomy-supportive restriction (e.g., "My parents explain to me why it's better to not play those games"); (2) controlling restriction (e.g., "My parents would get angry if I still want to play those games"); and (3) inconsistent restriction (e.g., "My parents would say that I am not allowed to play those games, but I know that after a while I can play those games again"). Only the follow-up items were used in this study. Response options for these follow-up items were (1) completely not true, (2) not true, (3) neutral, (4) true, and (5) completely true. Scales were created for each of the three restrictive mediation styles by averaging the four follow-up items for each style. Internal reliability was good for each scale (Cronbach's alpha's: autonomy-supportive restriction = .83; controlling restriction = .74; inconsistent restriction = .79).

Similarly, each of the four main active mediation items is followed by two follow-up items that measure *how* adolescents' parents actively mediate their media use: (1) autonomy-supportive active mediation (e.g., "My parents would encourage me to voice my own opinion"); and (2) controlling active mediation (e.g., "My parents would value their own opinion more than mine"). The same response options were given. Scales were created for each of the two active mediation styles by averaging the four follow-up items for each style. Internal reliability was good for each scale (Cronbach's alpha's: autonomy-supportive active mediation = .82; controlling active mediation = .70). Means and standard deviations are reported in Table 1.

Media violence exposure

Media violence exposure was measured using direct estimates of exposure to television and game violence. This method has been found reliable and valid for use in adolescent samples (Fikkers, Piotrowski, & Valkenburg, 2015). Direct estimates measured exposure to violent content on television and in electronic games with two items each (four items in total): (1) How often do you watch television programs [play

games] that contain violence? and (2) On the days that you watch television programs [play games] that contain violence, how much time do you spend on this per day? Participants were given the following definition of violence: "All violence (for example, fighting and shooting) that living beings (for example, humans and monsters) do to each other." Games referred to all types of games (video games, but also casual games played on mobile phones or websites). Response categories for the first item ranged from 0 (never) to 7 (7 days per week). The second item was an open-ended question, answered by filling in hours and minutes. The two items for each medium were multiplied to calculate the number of hours per week of violent television and violent game exposure. These two variables were then summed to create one variable representing violent media exposure in hours per week. Adolescents reported an average of 5.29 hours per week ($SD = 10.94$) of media violence exposure at Time 1.

Aggressive behavior

Adolescents' direct aggression was measured using eight items from the Direct and Indirect Aggression Scale (Björkqvist, Lagerspetz, & Kaukiainen, 1992). Adolescents were asked how often they do the following things when they are angry with another adolescent: (1) hit, (2) yell at or argue with, (3) kick, (4) swear at, (5) trip, (6) threaten to hurt, (7) push, or (8) fight with another adolescent. Response options were (1) never, (2) almost never, (3) sometimes, (4) often, and (5) very often. These items formed a reliable scale (Cronbach's alpha at both waves = .92). Means and standard deviations for Time 1 and Time 2 are reported in Table 1.

Control variables

We evaluated whether gender, age, parental education, and parental income were relevant control variables. Only gender correlated significantly with aggressive behavior at Time 1 and 2 (see Table 1), and was therefore included as a control variable in all analyses. Gender was coded as girls = 0 and boys = 1.

Analytic approach

Structural equation modeling (SEM) in MPlus (version 7.11, Muthén & Muthén, 2014) was used to test all study hypotheses. Model fit was evaluated by using the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). We preferred these measures over the Chi-square statistic, given that this index is often unreliable with large samples. A good model fit is indicated by a CFI larger than 0.95 and an RMSEA smaller than .05. A CFI between 0.90 and 0.95 and an RMSEA between .05 and .08 indicate acceptable model fit (Kline, 2010). Because our sample consisted of

sibling pairs, we accounted for clustering by using the “cluster” option in Mplus to obtain corrected standard errors. Inspection of multivariate outliers using Mahalanobis distance indicated that outliers on the media violence exposure variable were posing problems. To address this problem, media violence was trimmed to 28 hours per week at both Time 1 and Time 2 (changing the values for 3.1% and 5.4% of the sample in Time 1 and 2, respectively). These trimmed variables were used in all analyses (mean and standard deviation are reported in Table 1).

In our cross-sectional analyses, we used all Time 1 variables. Our main dependent variable, aggressive behavior, was positively skewed, which increases the likelihood of making Type I errors when using parametric analyses (Atkins & Gallop, 2007). In order to appropriately model this variable, we compared whether running the SEM models as Zero-Inflated Poisson models (a nonparametric approach) would result in better model fit compared to running the SEM models with the original aggression variable as dependent variable. Using the Bayesian Information Criterion to compare models, model fit was consistently better for the parametric analyses compared to the nonparametric analyses. We therefore used parametric SEM models with the Time 1 aggression variable as dependent variable for all cross-sectional hypotheses.

In our longitudinal analyses, we used aggressive behavior as a change score, which was created by subtracting the Time 1 score from the Time 2 score for each respondent (mean and standard deviation are reported in Table 1). This change score was normally distributed, indicating that parametric analyses were appropriate for all longitudinal hypotheses. In addition, using a change score is statistically equivalent to using aggression at Time 2 as the dependent variable while controlling for aggression at Time 1. Therefore, by using the change score for aggression, our models also took into account the longitudinal nature of our data.

In our longitudinal analyses for hypotheses 1 to 3, in which media violence exposure is conceptualized as a mediator, we also used a change score for media violence exposure. Hypotheses 1 to 3 ask whether restrictive mediation styles can change aggression *through changing* media violence exposure; thus, using a change score for media violence exposure is conceptually appropriate for analyses testing these three hypotheses. We created a change score for media violence exposure by subtracting the Time 1 trimmed score from the Time 2 trimmed score for each respondent (mean and standard deviation are reported in Table 1). In hypotheses 4 and 5, media violence exposure is conceptualized as predictor at Time 1, and therefore included as Time 1 variable both in the cross-sectional and the longitudinal analyses.

RESULTS

Descriptives

Table 1 presents the means, standard deviations, and correlations among study variables. At Time 1, the three restrictive mediation styles correlated with media violence and aggression in the expected directions. Autonomy-supportive restriction correlated negatively with both media violence exposure ($r = -.31, p < .001$) and aggressive behavior ($r = -.15, p < .001$). Inconsistent restriction correlated positively with both media violence exposure ($r = .27, p < .001$) and aggressive behavior ($r = .24, p < .001$). Controlling restriction correlated positively with aggression ($r = .17, p < .001$), but was not significantly related to media violence exposure ($r = .00, p = .926$). For the two active mediation styles, these patterns were similar. Autonomy-supportive active mediation correlated negatively with both media violence ($r = -.15, p < .001$) and aggression ($r = -.13, p < .001$), whereas controlling active mediation correlated significantly with aggression ($r = .14, p < .001$) but not with media violence ($r = -.01, p = .823$). When correlating the parental mediation variables with *change* in media violence and aggression (variables constructed by subtracting the Time 1 score from the Time 2 score), one significant correlation emerged between controlling restrictive mediation and change in aggression ($r = -.07, p = .049$). Media violence exposure correlated significantly with aggression at Time 1 ($r = .36, p < .001$) and with aggression at Time 2 ($r = .33, p < .001$), but not with change in aggression ($r = -.00, p = .957$).

Restrictive mediation styles

Hypotheses 1 to 3 were tested in one structural equation model. In the cross-sectional model, all variables at Time 1 were used, with the three restrictive mediation styles as predictors, media violence exposure as mediator, aggressive behavior as outcome, and gender as control variable. In the longitudinal model, we used change scores for both media violence exposure and aggressive behavior.

Cross-sectional

The hypothesized model had good fit to the data, CFI = 1.00, RMSEA = 0.00. H1a and H3a were supported. Autonomy-supportive restrictive mediation was related to a decrease in aggressive behavior via a decrease in media violence exposure (indirect effect: $b = -.02, SE = .01, p = .005, b^* = -.03$). Inconsistent restrictive mediation was related to an increase in aggressive behavior via an increase in media violence exposure (indirect effect: $b = .02, SE = .01, p = .004, b^* = .02$). H2a was not supported. Controlling restrictive mediation was not significantly related to media violence exposure, so the indirect effect was also not significant ($b = -.00, SE = .00, p = .236, b^* = -.01$).

Table 1 Means, standard deviations, and zero-order correlations among study variables ($n = 942$)

Variable	Mean (SD)	Zero-order correlations ^a												
		1	2	3	4	5	6	7	8	9	10			
1. Restriction: Autonomy-supportive	3.39 (1.01)	--												
2. Restriction: Controlling	1.96 (0.80)	.12*	--											
3. Restriction: Inconsistent	2.07 (0.85)	-.15*	.27*	--										
4. Active mediation: Autonomy-supportive	2.92 (0.91)	.56*	.12*	-.06	--									
5. Active mediation: Controlling	2.47 (0.79)	.13*	.46*	.26*	.09*	--								
6. Media violence exposure T1 ^b	4.60 (6.88)	-.31*	.00	.27*	-.15*	-.01	--							
7. Change in media violence exposure (T2-T1)	1.26 (6.45)	.04	-.00	.01	.02	.02	-.22*	--						
8. Aggressive behavior T1	1.61 (0.69)	-.15*	.17*	.24*	-.13*	.14*	.36*	.04	--					
9. Aggressive behavior T2	1.62 (0.70)	-.14*	.12*	.20*	-.12*	.09*	.33*	.11*	.59*	--				
10. Change in aggressive behavior (T2-T1)	0.01 (0.61)	-.01	-.07*	-.03	-.01	-.04	-.00	.05	-.41*	.45*	--			
11. Gender ^c	-	-.15*	.06*	.10*	-.14*	.06*	.39*	.16*	.34*	.34*	.34*	.01		

Note. All variables are Time 1 variables unless otherwise indicated.

^a Pearson's r correlations, converted from Kendall's tau- a correlations using Greiner's relation in Stata 12 (Newson, 2002).

^b Hours per week, mean of the trimmed variable that was used in the analyses.

^c Girls = 0; boys = 1.

* $p < .05$; † $p < .10$.

Longitudinal

The hypothesized model had good fit to the data, CFI = 1.00, RMSEA = 0.00. The results did not support any of the longitudinal hypotheses (H1b, H2b, H3b). None of the restrictive mediation styles significantly predicted a change in media violence exposure, therefore the indirect effects on change in aggression were also not significant.

Active mediation styles

Hypotheses 4 and 5 were tested in separate structural equation models that included one moderator at a time. In the cross-sectional models, all variables at Time 1 were used, with media violence as predictor, autonomy-supportive or controlling active mediation as moderator, aggressive behavior as outcome, and gender as control variable. In the longitudinal models, we used change scores for aggressive behavior.

Cross-sectional

The hypothesized model with autonomy-supportive active mediation as moderator had acceptable fit to the data, CFI = 0.953, RMSEA = .055. The results did not support H4a. Although media violence exposure was significantly related to aggressive behavior ($b = .12$, $SE = .03$, $p < .001$, $b^* = .18$), the relationship was not moderated by autonomy-supportive active mediation ($b = .02$, $SE = .03$, $p = .429$, $b^* = .03$).

The hypothesized model with controlling active mediation as moderator had good fit to the data, CFI = 1.00, RMSEA = 0.00. The results did not support H5a. The significant cross-sectional relationship between media violence exposure and aggression was not moderated by controlling active mediation ($b = -.00$, $SE = .02$, $p = .980$, $b^* = -.00$).

Longitudinal

The hypothesized model with autonomy-supportive active mediation as moderator had acceptable fit to the data, CFI = 0.908, RMSEA = 0.055. The results did not support H4b. Media violence exposure did not predict change in aggression ($b = -.02$, $SE = .03$, $p = .535$, $b^* = -.03$), and this longitudinal relationship was not moderated by autonomy-supportive active mediation ($b = .00$, $SE = .03$, $p = .979$, $b^* = .00$).

The hypothesized model with controlling active mediation as moderator had good fit to the data, CFI = 1.00, RMSEA = 0.00. The results did not support H5b. Controlling active mediation did not moderate the (non-significant) longitudinal relationship between media violence exposure and change in aggression ($b = .01$, $SE = .02$, $p = .543$, $b^* = .02$).

DISCUSSION

This study investigated the effectiveness of autonomy-supportive, controlling, and inconsistent styles of restrictive and active parental mediation in reducing the potential effect of media violence on early adolescents' aggressive behavior. Based on Self-Determination Theory (Ryan & Deci, 2000; Valkenburg et al., 2013), we expected that autonomy-supportive restrictive mediation would reduce aggression via reduced media violence exposure (H1), whereas controlling and inconsistent restrictive mediation would increase media violence and subsequent aggression (H2, H3). Hypotheses 1 and 3 were supported cross-sectionally but not longitudinally (one year later). Controlling restrictive mediation was not related to media violence exposure, rejecting hypothesis 2. We also expected that autonomy-supportive active mediation weakens (H4) and controlling active mediation strengthens (H5) the relationship between media violence exposure and aggressive behavior. These hypotheses were not supported cross-sectionally or longitudinally.

Restrictive mediation styles

Our findings for restrictive mediation support the idea that the style of parental mediation matters when attempting to reduce media violence exposure and, by extension, potentially reduce aggression. Generally, restriction of media use may evoke reactance among adolescents which can result in boomerang effects (Byrne & Lee, 2011). Our study shows that such boomerang effects may be circumvented when parents restrict media in an autonomy-supportive way. Autonomy-supportive restriction (characterized by providing a rationale for rules and taking the child's perspective seriously) may lead to successful internalization of regulations among adolescents, which was reflected in this study by a cross-sectional reduction of media violence exposure and aggression. On the other hand, boomerang effects did occur when parents restricted their children's media use in an inconsistent way. Restricting violent media use at some occasions while allowing it at others was related to more media violence exposure and aggression in youth. Lastly, controlling restrictive mediation was not related to adolescents' media violence exposure and aggression. It may be that, in some families, controlling restriction is so strict that children simply cannot engage in "boomerang behaviors."

Although autonomy-supportive and inconsistent restrictive mediation were cross-sectionally related to media violence and aggression, neither predicted changes in media violence exposure over the course of a year. While previous research reports only cross-sectional correlations between restrictive mediation and children's media

violence exposure (Gentile et al., 2014; Nathanson, 1999), our study was the first to test whether restrictive mediation also works in the long term. The lack of longitudinal findings suggests that such parenting behaviors do not have long-lasting effects. However, before concluding this, we need additional longitudinal research that further improves upon this study. It is possible that our longitudinal study incorporating two waves of data (one year apart) was not able to capture the potentially dynamic relationship between parents' media regulations and children's media violence exposure. Early adolescence is a developmental period in which children increasingly engage in negotiations with their parents about rules, while parents gradually relax restrictions and allow children more freedom (Davies & Gentile, 2012; Opgenhaffen, Vandenbosch, Eggermont, & Frison, 2012). These developments have two important consequences for studying the longitudinal relationship between restrictive mediation and children's media violence exposure. First, such an effect may only be visible during a shorter time frame, such as a few months, after which adolescents and parents may have jointly negotiated new rules. Second, the relationship may be bidirectional, such that restrictive mediation is a response as well as a precursor of children's media violence exposure (Clark, 2011). After all, parents only need to restrict media violence when their child is interested in it in the first place (and when parents perceive this as problematic). Thus, before concluding whether or not parental mediation has effects over time and in order to further disentangle potential transactional processes, future research should collect multiple measurements from families with adolescents in shorter time lags, for example at three or more occasions during a one-year interval. In addition, qualitative data such as observation studies or interviews would provide more insight in the dynamic process in which parents and youth jointly negotiate family rules for media, as well as the role of different mediation styles in this process.

Active mediation styles

In this study, active mediation styles did not moderate the relationship between media violence exposure and adolescents' aggressive behavior. Autonomy-supportive active mediation did not weaken, nor did controlling active mediation strengthen this relationship. As with restrictive mediation, the absence of longitudinal evidence may be explained by a potential short-term cyclical process not captured by our one-year time lag. However, it is particularly notable that active mediation styles also did not moderate the relationship between media violence and aggression in the cross-sectional analyses. While several studies have shown that active mediation can influence children's *knowledge* about or *attitudes* toward violent television content (e.g., Nathanson & Yang, 2003; Nathanson, 2004; Rasmussen, 2014), our findings – in

combination with the inconsistent active mediation findings from previous research (Grusec, 1973; Hicks, 1968; Mattern & Lindholm, 1985; Nathanson, 1999; Nathanson & Cantor, 2000; Nathanson, 2004) – raise questions about the effectiveness of active mediation as a way to reduce the potential effects of media violence exposure on aggressive *behavior*. Given the persuasive theoretical argumentation underlying active mediation (Cantor & Wilson, 2003), it is somewhat surprising that we do not find similarly persuasive empirical evidence for active mediation as a way to reduce the relationship between media violence and aggression.

On the one hand, perhaps we should be more realistic in what active mediation of violent media can achieve. A recent meta-analysis on the effects of more formal media literacy interventions indicated that such interventions have larger effects on media-relevant outcomes (e.g., knowledge and realism) compared to behavior-relevant outcomes (Jeong, Cho, & Hwang, 2012). The authors suggest that this is a consequence of the fact that media literacy programs directly focus on media-relevant outcomes, but not on subsequent real-life behaviors. The same is true for parental active mediation of violent media. It is not so strange, then, that existing research (Nathanson, 2004) finds that variables that are more closely related to the content of active mediation (knowledge about and attitudes towards media violence) seem to be more strongly affected than more distal outcomes, in this case real-life aggression. Active mediation of violent media may simply be too far removed from aggressive behavior to reduce such a complex social behavior.

On the other hand, several unanswered questions remain that need answering before we can fully understand the intricate and perhaps subtle processes in which active mediation may influence potential media violence effects on aggression. One step forward would be to develop a clearer theoretical framework that can help explain inconsistent previous findings and guide future research (cf. Clark, 2011; Rasmussen, 2013). Such theoretical work should be informed by more fine-grained qualitative research that takes into account family processes as well as individual differences (Nathanson, 2015). Existing research (including this study) has taken a relatively simplified approach to studying the active mediation process, leaving open several questions about why active mediation may or may not work. For example, what is it exactly that children take away from active mediation communicated in different styles? How do they internalize such messages and integrate them with the messages they may receive from important others such as their peers? Furthermore, no research has investigated the role of “dosage” of active mediation. Do parents need to actively mediate every time their children use violent media, or is that exactly the type of parental behavior that encourages reactance? Lastly, is active mediation perhaps

only effective in the potentially small subsample of children that is most vulnerable to violent media effects? And if so, what is the style in which such mediation would be most successful? A two-tiered approach to future research which consists of both theory development and empirical investigation may be the best way to uncover what active mediation can achieve, as well as how and for whom.

Conclusion

This study investigated the differential effectiveness of restrictive and active parental media mediation styles on early adolescents' media violence exposure and aggressive behavior. Our findings suggest some guidelines for parents who are concerned about the potential negative effects of media violence exposure on their children's aggression. Results indicate that restrictive mediation communicated in an autonomy-supportive way (i.e., providing a rationale for rules and listening to the child's perspective) is related to reduced media violence exposure and concurrent aggression. Alternatively, inconsistent restriction proved to be a problematic approach to media mediation. Restricting violent media use at some occasions while allowing it at others (perhaps as a reward) was related to more media violence exposure and aggression in youth. And finally, perhaps counter to popular beliefs, actively discussing violent media content with children was not superior to restrictive mediation. In this study, active mediation styles did not change the relationship between media violence and aggression. More work is certainly needed to better understand the effectiveness of restrictive and active mediation over time, as well as for whom active mediation may be an effective mediation tool. For now, this study shows researchers as well as parents that when it comes to parental mediation of violent media content, style matters.