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A matter of style? Exploring the effects of parental mediation styles on early adolescents' media violence exposure and aggression

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ABSTRACT

This two-wave survey study investigated the concurrent and longitudinal relationships between different styles of restrictive and active parental mediation (autonomy-supportive, controlling, or inconsistent), adolescents' media violence exposure, and aggression. Our sample consisted of 1029 adolescents (10–14 years; 49.8% girls). Results indicate that restrictive mediation communicated in an autonomy-supportive style was concurrently related to decreased aggression via decreased media violence exposure. In contrast, inconsistent restrictive mediation was concurrently related to increased aggression via increased media violence exposure. No significant relationships were found for controlling restrictive mediation. None of the restrictive mediation styles were longitudinally related to media violence exposure and aggression. Active mediation moderated neither the concurrent nor the longitudinal relationships 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.

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1. Introduction

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, 2014), although there is also research to suggest that no such relationship exists (for a review, see Elson & Ferguson, 2014). 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, Krcmar, 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 to help make them more critical consumers of media content. Conceptually, then, restrictive mediation is a predictor of media violence exposure, while active mediation is a moderator of the relationship between media violence exposure and subsequent outcomes.

Although research investigating the effectiveness of restrictive and active parental mediation strategies provides encouraging results (Collier et al., 2016), empirical studies do not consistently find reductions in media violence and aggression as a result of restrictive or active mediation (e.g., Gentile, Reimer, Nathanson, Walsh, & Eisenmann, 2014; Nathanson, 1999, 2004; Padilla-Walker, Coyne, & Collier, 2016). A recently proposed explanation for these inconsistencies is that research has not considered the *style* in which parental mediation is communicated towards youth (Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013). Certain parenting styles such as autonomy-supportive styles more successfully promote internalization of values and regulations, whereas controlling and inconsistent parenting styles are related to adverse outcomes (e.g., Darling & Steinberg, 1993; Gardner, 1989; Joussemet, Landry, & Koestner, 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 style, but the same strategies may result in no or reverse outcomes when communicated in a

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controlling or inconsistent style (Valkenburg et al., 2013).[1]

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. We conducted a one-year longitudinal study among 10- to 14-year-old early adolescents. This is a particularly relevant age to focus upon since it is during this period that youth begin to seek more autonomy and control over their own choices and, as such, parental rules about media may need to be reconsidered (Davies & Gentile, 2012).

1.1. 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). Restrictive and active mediation represent two conceptually different strategies to prevent that children may become more aggressive when consuming 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 see and learn from violent media content. Thus, the conceptual role of restrictive mediation is to reduce media violence exposure, which may subsequently reduce aggressive behavior.

Three studies have investigated this relationship. A cross-sectional survey by Nathanson (1999) showed that restrictive mediation was related to less aggressive tendencies among children, but a longitudinal survey by Padilla-Walker et al. (2016) found no significant relationships between restrictive mediation and aggressive behavior two years later. However, these studies 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 concurrently 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 reduced media violence exposure.

Whereas the conceptual role of restrictive mediation is to prevent exposure to violent media content, the conceptual role of active mediation is to influence what children take away from violent media when they do consume it. In other words, through active mediation parents attempt to change the *effect* of media on children's knowledge, attitudes, and behavior. 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 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. Padilla-Walker et al. (2016) report a longitudinal negative indirect effect of active mediation on aggression via sympathy and self-regulation. However, experimental evidence is mixed. In an experiment in which some children received active mediation and others did not, Nathanson (2004) did not find that aggressive behavior 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 restrictive and active mediation are effective strategies to decrease media violence-induced aggression is still an open question.

1.2. Styles of parental mediation

A recently proposed explanation for the inconsistent findings is that previous work has taken a relatively "dichotomous" approach to studying restrictive and active mediation (also observed by Padilla-Walker et al., 2016; White, Rasmussen, & King, 2015). Restrictive mediation is often seen as a "bad" strategy because it is assumed to be too controlling for adolescents, which may therefore result in unintended or boomerang effects (Padilla-Walker et al., 2016; White et al., 2015). Active mediation, on the other hand, is often seen as the more preferable strategy because it is assumed to be more autonomy-supportive. Yet, the strategies of restrictive and active mediation are not in and of themselves good or bad. Rather, their effectiveness may depend on the *style* in which parents communicate these strategies with their children (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 style 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.

[1] Throughout this article, we use the term "strategy" to refer to the strategies of restrictive and active parental mediation, and the term "style" to refer to *how* parents communicate these two strategies (in an autonomy-supportive, controlling, or inconsistent style).

As a domain-specific form of parenting, parental media mediation is no different. Here, too, parents can apply restrictive and active mediation in a style that is autonomy-supportive, controlling, or inconsistent (Valkenburg et al., 2013). 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 (whether through restrictive or active mediation), 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), a reaction also known as a "forbidden fruit effect" (e.g., Nije Bijvank, Konijn, Bushman, & Roelofsma, 2009; Varava & Quick, 2015; White et al., 2015). 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.

1.2.1. Restrictive mediation styles

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 et al., 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 styles scale by showing that the three restrictive mediation styles correlated in the expected directions with aggressive behavior: Autonomy-supportive restriction was concurrently related to less aggressive behavior, whereas controlling and inconsistent restriction were both positively related to aggression. Similarly, a cross-sectional study by Nikkelen, Vossen, Piotrowski, and Valkenburg (2016) showed that autonomy-supportive restriction correlated with less media violence exposure while inconsistent restriction was associated 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 concurrent 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 Fig. 1):

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

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

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

1.2.2. 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.). Given that no existing studies have investigated different styles of active mediation, there is little empirical evidence for the role of autonomy-supportive and controlling active mediation as moderators of the media violence-aggression relationship. Thus, this study investigated whether autonomy-supportive and controlling active mediation may weaken or strengthen a relationship between media violence and early adolescents' aggression, concurrently as well as longitudinally. We pose the following two hypotheses related to active mediation styles (visualized in the lower panel of Fig. 1):

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

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

2. Method

2.1. 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. This study was part of a larger project for which the inclusion of sibling data was necessary. Therefore, households with at least two children between 10 and 14 (1565 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 1029 early adolescents participated in wave 1, and 942 adolescents participated again in wave 2 (i.e., an 8.5% dropout rate). Youth who dropped out in wave 2 had reported higher scores for media violence exposure and aggression at wave 1, and lower scores on autonomy-supportive and controlling restrictive and active mediation at wave 1. We included all 1029 adolescents in the concurrent analyses (99.7% sibling pairs; 49.8% girls; mean age at Time 1 = 11.8 years, *SD* = 1.4 years). Longitudinal analyses accounted for missing data at wave 2 by using Full Information Maximum Likelihood estimation in Mplus (see Analytic Approach).

Parents of the full sample reported having completed the following education levels: 0.2% primary education; 11.6% preparatory secondary education; 43.6% senior secondary education; and 43.3% higher education. Reported annual household income categories included: less than €20,000 (5.4%); €20,000 to €38,800 (18.7%); €38,800 to €51.300 (16.1%); €51.300 to €65,000 (17.7%); €65,000 to €77,5000 (10.5%); and more than €77,500 yearly household income (11.0%).

2.2. Measures

2.2.1. Parental media mediation

Parental media mediation was measured using the Perceived Parental Media Mediation Scale (PPMMS), which has been found reliable and valid for early adolescent samples (Valkenburg et al., 2013; full scale available in appendix of that article). The PPMMS

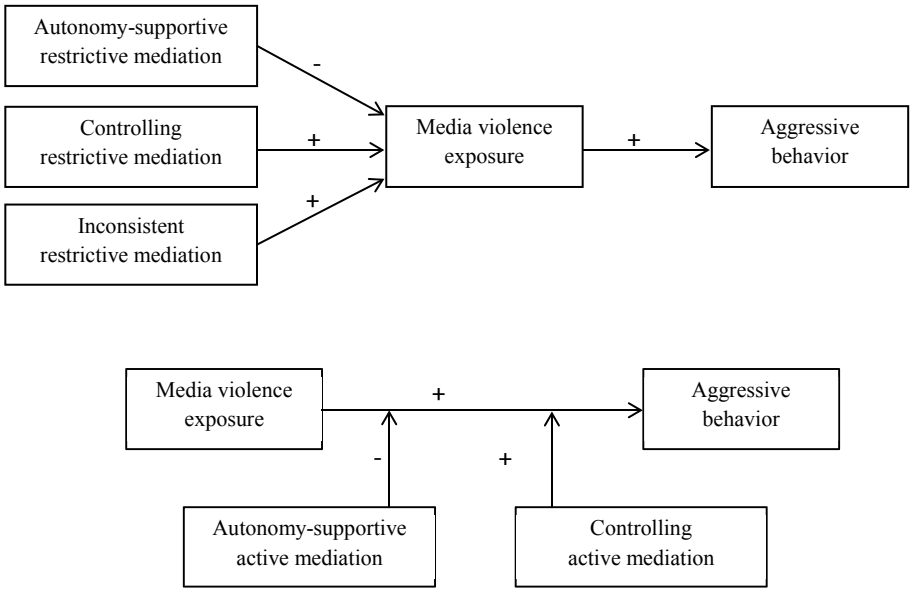

Fig. 1. Conceptual models of the different roles of restrictive and active mediation styles in the relationship between media violence exposure and aggression.

contains 28 items and is divided into eight "main items" that measure frequency of restrictive and active mediation, and 20 "follow-up items" that measure the style in which these strategies are communicated. All adolescents were presented with all main items as well as all follow-up items, but given our focus on styles instead of frequency of parental mediation, only the 20 follow-up items were used in this study. Each of the three styles of restrictive mediation and the two styles of active mediation was measured with four items (thus making up the 20 follow-up items). The items represent a mix of media situations related to television and movies as well as games.

For each of the three restrictive mediation styles, adolescents were asked to indicate *how* their parents discuss media restrictions with them on a scale from (1) completely not true, to (5) completely true. For example, adolescents were asked: "If your parents forbid you to watch certain shows or movies because there is too much violent content, how do they discuss this with you?" They were then presented with three statements, one for each restrictive style. For *autonomy-supportive* restriction, adolescents indicated their agreement with items such as "My parents would explain to me why it's better not to watch those shows" (Cronbach's alpha for the four autonomy-supportive items = 0.84). *Controlling* restriction was measured with items such as "My parents would get angry if I still wanted to watch those shows" (alpha = 0.74). *Inconsistent* restriction was measured with items such as "My parents would tell me I'm not allowed to watch those shows, but I know that I will be able to watch them after a while" (alpha = 0.78). Cronbach's alpha values for the three scales were similar to those reported for the original scales by Valkenburg et al. (2013). Scales were created for each of the three restrictive mediation styles by averaging the four items for each style.

The two active mediation styles were measured in the same way. Adolescents were asked *how* their parents discuss media content with them on a scale from (1) completely not true, to (5) completely true. For example, adolescents were asked: "If your parents tell you that fighting and shooting in the media is different than in real life, how would they discuss this with you?" They were then presented with two statements, one for each active mediation style. For *autonomy-supportive* active mediation, adolescents indicated their agreement with items such as "My parents would be curious how I feel about this" (Cronbach's alpha of the four autonomy-supportive active mediation items = 0.83). *Controlling* active mediation was measured with items such as "My parents would only be interested in their own opinion and not listen to my views" (alpha = 0.70). Cronbach's alpha values for these two scales were also similar to those reported for the original scales by Valkenburg et al. (2013). Scales were created for each of the two active mediation styles by averaging the four items for each style. Means and standard deviations are reported in Table 1.

2.2.2. Media violence exposure

Media violence exposure was measured in wave 1 and wave 2 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 5.51 h per week (SD = 10.98) of media violence exposure at Time 1.

2.2.3. 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)

Table 1
Means, standard deviations, and zero-order correlations among study variables.

Variable	Mean (SD)	Zero-order correlations[a]								
		1	2	3	4	5	6	7	8	9
1. Restriction: Autonomy-supportive	3.35 (1.03)	–								
2. Restriction: Controlling	1.95 (0.80)	0.14*	–							
3. Restriction: Inconsistent	2.08 (0.85)	−0.15*	0.27*	–						
4. Active mediation: Autonomy-supportive	2.90 (0.92)	0.56*	0.16*	−0.04	–					
5. Active mediation: Controlling	2.45 (0.79)	0.16*	0.45*	0.28*	0.13*	–				
6. Media violence exposure[b]	4.80 (7.09)	−0.32*	−0.00	0.26*	−0.14*	−0.02	–			
7. Change in media violence exposure (T2-T1)	1.26 (6.45)	0.04	−0.00	0.01	0.02	0.02	−0.22*	–		
8. Aggressive behavior	1.64 (0.72)	−0.17*	0.15*	0.22*	−0.13*	0.12*	0.36*	0.04	–	
9. Change in aggressive behavior (T2-T1)	0.01 (0.61)	−0.01	−0.07*	−0.03	−0.01	−0.04	−0.00	0.05	−0.41*	–
10. Sex[c]	–	−0.16*	0.06*	0.09*	−0.12*	0.06*	0.39*	0.16*	0.34*	0.01

Note. All variables are Time 1 variables unless otherwise indicated. $n = 1029$ for all T1 means and correlations; $n = 942$ for all means and correlations involving T2 variables.
* $p < 0.05$.
[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.

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. A scale was created by averaging the eight items (Cronbach's alpha at both waves = 0.92). Means and standard deviations for Time 1 are reported in Table 1.

2.2.4. Control variables

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

2.3. Analytic approach

Structural equation modeling (SEM) in Mplus (version 7.11, Muthén & Muthén, 2014) was used to test all study hypotheses using path models with single observed indicators for each construct. 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 0.05. A CFI between 0.90 and 0.95 and an RMSEA between 0.05 and 0.08 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. To address issues associated with missing data (i.e., 87 respondents only participated at Time 1), Mplus uses a Full Information Maximum Likelihood estimator such that all available raw data is used to estimate model parameters (Enders, 2001). 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 h per week at both Time 1 and Time 2 (changing the values for 3.6% and 5.0% 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 concurrent 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 parametric SEM models. Using the Bayesian Information Criterion to compare models, model fit was consistently better (i.e., BIC values were lower; Raftery, 1995) 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 concurrent 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 concurrent and the longitudinal analyses.

3. Results

3.1. Descriptives and correlations

Table 1 presents the means, standard deviations, and correlations among study variables. In our sample, early adolescents reported an average of 4.8 h of media violence exposure per week ($SD = 7.09$), which increased over time as evidenced by an average positive change in media violence exposure of 1.26 h ($SD = 6.45$). On average, early adolescents reported little aggressive behavior ($M = 1.64$, $SD = 0.72$, measured on a scale ranging from 1 "never" to 5 "very often"). Aggressive behavior was very stable over time, as indicated by an average change in aggression of 0.01 ($SD = 0.61$). As for the restrictive and active mediation styles, autonomy-

supportive restrictive mediation was perceived most ($M = 3.35$, $SD = 1.03$), followed by autonomy-supportive active mediation ($M = 2.90$, $SD = 0.92$) and controlling active mediation ($M = 2.45$, $SD = 0.79$). Inconsistent restriction ($M = 2.08$, $SD = 0.85$) and controlling restriction ($M = 1.95$, $SD = 0.80$) were perceived least.

As for the correlations, 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 ($r = -0.32$, $p < 0.001$) and aggressive behavior ($r = -0.17$, $p < 0.001$). Inconsistent restriction correlated positively with both media violence exposure ($r = 0.26$, $p < 0.001$) and aggressive behavior ($r = 0.22$, $p < 0.001$). Controlling restriction correlated positively with aggression ($r = 0.15$, $p < 0.001$), but was not significantly related to media violence exposure ($r = -0.00$, $p = 0.973$). For the two active mediation styles, these patterns were similar. Autonomy-supportive active mediation correlated negatively with both media violence ($r = -0.14$, $p < 0.001$) and aggression ($r = -0.13$, $p < 0.001$), whereas controlling active mediation correlated significantly with aggression ($r = 0.12$, $p < 0.001$) but not with media violence ($r = -0.02$, $p = 0.551$). 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 ($r = -0.07$, $p = 0.049$). Media violence exposure correlated significantly with aggression at Time 1 ($r = 0.36$, $p < 0.001$) but not with change in aggression ($r = -0.00$, $p = 0.957$).

3.2. Restrictive mediation styles (H1–H3)

Hypotheses 1 to 3 (pertaining to statistical mediation models, see Fig. 1) were tested simultaneously in both the concurrent and longitudinal analyses. In the concurrent 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 sex as control variable. In the longitudinal model, we used change scores for both media violence exposure and aggressive behavior.

3.2.1. Concurrent model

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: $b = -0.02$, $SE = 0.006$, $p = 0.004$, $b^* = -0.02$). Inconsistent restrictive mediation was related to an increase in aggressive behavior via an increase in media violence exposure (indirect effect: $b = 0.02$, $SE = 0.005$, $p = 0.005$, $b^* = 0.02$). H2a was not supported. Controlling restrictive mediation was not significantly related to media violence exposure, so the indirect effect was also not significant ($b = -0.01$, $SE = 0.003$, $p = 0.107$, $b^* = -0.01$). In summary, this model provided support for the hypothesized concurrent roles of autonomy-supportive and inconsistent restrictive mediation (H1a and H3a), but not for controlling restrictive mediation (H2a).

3.2.2. Longitudinal model

The hypothesized model had good fit to the data, CFI = 1.00, RMSEA = 0.00. The results did not support any of 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.

3.3. Active mediation styles (H4-H5)

Hypotheses 4 and 5 (pertaining to statistical moderation models, see Fig. 1) were tested in separate models that included one moderator at a time. In the concurrent 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 sex as control variable. In the longitudinal models, we used change scores for aggressive behavior. Interaction variables (media violence exposure and the two active mediation styles) were centered before creating the interaction term.

3.3.1. Concurrent model

The hypothesized model with autonomy-supportive active mediation as moderator had good fit to the data, CFI = 1.00, RMSEA = 0.00. The results did not support H4a. Although media violence exposure was significantly related to aggressive behavior ($b = 0.02$, $SE = 0.004$, $p < 0.001$, $b^* = 0.17$), the relationship was not moderated by autonomy-supportive active mediation ($b = 0.00$, $SE = 0.003$, $p = 0.184$, $b^* = 0.05$).

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 concurrent relationship between media violence exposure and aggression was not moderated by controlling active mediation ($b = 0.00$, $SE = 0.004$, $p = 0.530$, $b^* = 0.02$). In summary, these models did not support the hypothesized concurrent roles of autonomy-supportive and controlling active mediation (H4a and H5a).

3.3.2. Longitudinal model

The results of the model with autonomy-supportive active mediation as moderator (CFI = 0.00, RMSEA = 0.00) did not support H4b. Media violence exposure did not predict change in aggression ($b = -0.00$, $SE = 0.004$, $p = 0.533$, $b^* = -0.03$), and this longitudinal relationship was not moderated by autonomy-supportive active mediation ($b = 0.00$, $SE = 0.004$, $p = 0.979$, $b^* = 0.00$).

Similarly, the results of the model with controlling active mediation as moderator (CFI = 0.00, RMSEA = 0.00) did not support H5b. Controlling active mediation did not moderate the (non-significant) longitudinal relationship between media violence exposure and change in aggression ($b = 0.00$, $SE = 0.004$, $p = 0.543$, $b^* = 0.03$). In summary, these models did not support the hypothesized longitudinal roles of autonomy-supportive and controlling active mediation (H4b and H5b).

4. Discussion

This study makes a unique contribution to the parental mediation literature by investigating the concurrent and longitudinal effectiveness of the *styles* in which parents communicate restrictive and active media mediation with their children. Specifically, we studied the effect of autonomy-supportive, controlling, and inconsistent styles of restrictive and active parental mediation on 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 concurrently but not longitudinally. 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 concurrently or longitudinally.

4.1. Restrictive mediation styles

Our findings for restrictive mediation provide some support for 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 style. 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 concurrent 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 style. 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."

This study is one of the few to test the relationship between parental mediation and children's media use and behavior over time. Although autonomy-supportive and inconsistent restrictive mediation were concurrently related to media violence and aggression, neither predicted changes in media violence exposure over the course of a year. Previous research also reports only significant concurrent correlations between restrictive mediation and children's media violence exposure (Gentile et al., 2014; Nathanson, 1999), but no significant longitudinal effects (Padilla-Walker et al., 2016). This lack of longitudinal findings suggests that restriction of media content does not have long-lasting effects. However, before concluding this, we need additional research that further improves upon this study. It is possible that our design (data collection interval one year apart) was unable to sufficiently 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; Padilla-Walker, Coyne, Fraser, Dyer, & Yorgason, 2012). These developments have two important consequences for studying the longitudinal relationship between restrictive mediation and early adolescents' 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, 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 (while being mindful of potential re-test effects when measuring the same constructs repeatedly in a relatively short time period). 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. Such research should not only investigate these processes on the individual level, but also seek to understand how the family system as a whole influences parental mediation. For example, siblings may also influence each other's media use, and parents may communicate about media in different styles with siblings of different ages and genders (Davies & Gentile, 2012). Future parental mediation research should therefore help parents identify which styles would be most effective for their particular child and particular family context.

4.2. 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 concurrent analyses, even though the cross-sectional correlations between active mediation styles, media use, and aggressive behavior in this study (see Table 1) were in line with those found in a recent meta-analysis (Collier et al., 2016). While several studies have shown that active mediation can influence children's *knowledge* about or *attitudes* toward violent television content (e.g., Linder & Werner, 2012; 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 & Cantor, 2000; Nathanson, 1999, 2004) – raise questions about the effectiveness of active mediation as a strategy 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 strategy 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 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; Jiow, Lim, & Lin, 2016; Rasmussen, 2013). One

relevant avenue for further development is to consider the conceptual role of active mediation. For example, although conceptual descriptions in the literature would posit active mediation as a moderator of the relationship between media use and outcomes (e.g., Cantor & Wilson, 2003), it is also conceivable that its role changes over time into a predictor. Indeed, several empirical studies have tested active mediation as a predictor of media use and outcomes such as aggressive or sexual behavior (see meta-analysis by Collier et al., 2016). If adolescents become more critical of violence due to consistent and repeated discussion of violent media content with their parents, they might choose to select such content less as a result. Future research may investigate such potentially changing conceptual roles of active mediation over time using longitudinal studies with three or more waves of data.

Further theory development related to parental mediation should be also 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.

4.3. 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 in families where parents communicate restrictive mediation in an autonomy-supportive style (i.e., by providing a rationale for rules and listening to the child's perspective) children report less 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.

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