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Does Parental Mediation of Media Influence Child Outcomes? A Meta-Analysis on Media Time, Content, Aggression, Substance Use, Sexual Behavior, and Health Outcomes

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ABSTRACT

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As the world evolves into a media saturated environment, the focus of many studies have
been the negative effects of media on children and adolescents. For at least the past two decades,
researchers have explored how parental involvement in their child's media consumption can
influence child outcomes. Parental mediation of media includes restrictive mediation, active
mediation, and co-viewing. Three meta-analyses, one for each type of mediation, reviewed a
total of 69 studies. Each analysis assessed the effectiveness of parental mediation of media on
five pertinent child outcomes: media use, aggression, substance use, sexual behavior, and
negative health outcomes. The overall results indicated small, but significant relationships
between child outcomes and restrictive mediation ($r_+ = .07$), active mediation ($r_+ = .01$), and co-
viewing ($r_+ = .09$). Effects on certain child outcomes were stronger than others. Parents have the
ability to mitigate some of the adverse effects through parental mediation of media by creating
rules for media use; discussing character's choices and central themes; and consuming media
together. Finally, several gaps in the existing literature were identified and discussed.

ACKNOWLEDGMENTS

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Does Parental Mediation of Media Influence Child Outcomes? A Meta-Analysis on Media Time, Content, Aggression, Substance Use, Sexual Behavior, and Health Outcomes

Over the past decade, children's media use and exposure to media have significantly increased. Adolescents currently spend almost eight hours a day using media, cramming nearly 11 hours of media content into those hours (Kaiser, 2010). This amount far exceeds the AAP's (American Academy of Pediatrics) suggested two hours or less of media per day to encourage optimal development (AAP, 2001). Viewing different types of content in the media has been shown to have wide and varied effects. For example, exposure to certain types of content is related to a number of negative outcomes for children and adolescents including problems at home or school (Kaiser, 2010; Roberts et al., 2005); verbal, physical, and relational aggression (e.g., Anderson et al., 2003; Brummert Lennings, & Warburton, 2011; Bushman & Anderson, 2009 ; Coyne & Archer, 2004; Coyne, Robinson, & Nelson, 2010); poor academic performance (Cummings & Vandewater, 2007); negative body image (Eyal & Te'eni-Harari, 2013; Tiggeman & Slater, 2014; Warren & Rios, 2013) obesity (Dixon, Sculley, Wakefield, White, & Crawford, 2007; Wouters and Geenen, 2013); substance use (Dalton et. al, 2003; Schooler, Feighery, & Flora, 1996); attention problems (Christakis, Zimmerman, DiGiuseppe, McCarty, 2004); and risky sexual behavior (Escobar-Chaves et al., 2005). Parents are responsible for influencing their child's perceptions and use of the media with the majority of a child's media consumption occurring in his or her home (Hogan, 2012). One technique that parents and researchers have discovered to be effective in mitigating media effects is termed *parental mediation of media*. This study will differentiate between the types of parental mediation of media and examine through meta-analysis how each may influence common child and adolescent outcomes.

Types of Parental Mediation of Media

Parental mediation of media (also called parental media monitoring: Padilla-Walker, Coyne, Fraser, Dyer, & Yorgason, 2012) involves the interactions parents have with their children about media use, including restrictive, active, and co-viewing (Valkenburg, Krcmar, Peeters, & Marseille, 1999). *Restrictive mediation* (i.e., cocooning, and rule setting) occurs when parents generate rules that limit their child's time spent consuming media (i.e., television, video games, magazines, and/or internet) or the content their child is allowed to access (e.g., Valkenburg et al., 1999). For instance, parents would be demonstrating restrictive mediation if they were to limit their child's video game play to one hour per day or forbid the child to watch certain types of content. Conversely, *active mediation* (also termed instructive mediation, interpretive mediation, evaluative mediation, pre-arming, promotive mediation, and discussion) occurs when parents discuss character's choices, central themes, or other components of the media consumed with their child (Austin, 1993). For example, parents using active mediation would ask their child about possible consequences of a television character's choice to yell at his or her friend. Most likely, discussion between parent and child would follow with the child ideally gaining greater critical thinking abilities. Also, subcategories of active mediation are beginning to be investigated including positive, negative, and neutral active mediation. Positive active mediation refers to messages that endorse or praise content (i.e., "I love this show") whereas negative active mediation refutes or condemns mediated content (i.e., "That's not real") (Austin, Bolls, Fujioka, & Engelbertson, 1999). When parents' comments are neither negative nor positive, neutral active mediation is being used (i.e., "He is laughing") (Nathanson 2001a). Finally, *co-viewing* (including co-playing, co-reading, and co-listening) consists of parents consuming media with their child, albeit with no discussion following (Dorr, Kovaric, &

Doubleday, 1989). For instance, a parent who listens to music with their child but never discusses the content or amount of time spent listening would be engaging in co-listening. Co-viewing also splits into two subgroups: intentional co-viewing for when parents are concerned about the influence of media and co-view to protect their child; and passive co-viewing for when parents circumstantially are in the same room when their child or adolescent is consuming media, or vice versa (Chakroff & Nathanson, 2008).

Theoretical Background

The vast majority of parental mediation studies do not explicitly discuss theory. However, the general principles behind parental mediation can be well explained by a number of family and developmental theories. General parenting strategies include monitoring a child's or adolescent's attitudes and behavior to protect from physical harm and to illicit more socially appropriate attitudes and behaviors. Recent research by Kerr, Stattin and Burk (2010) find that parents obtain more knowledge about daily adolescent activities from willing youth disclosure than from classic parental monitoring efforts (i.e., parental control and solicitation). Parental monitoring of peer relationships, a similar literature to parental mediation of media, entails parents consulting children and adolescents about their relationships in response to specific incidences regarding peers, as well as preparing children for the possibility of particular problems that occur among peers; parents also are heavily involved in regulating peer interactions, but this decreases with age (Mounts, 2011).

Restrictive mediation of media may be viewed as a form of parental monitoring. This strategy is an involved process with parents having direct supervision and control of their child's media activity to protect from harmful exposure leading to negative outcomes, which is comparable to how parents monitor peers. Younger children may be more accepting of

restrictions, as they have less need for autonomy and may view parental rules as absolute (Nathanson, 2001b). As the child grows into adolescence, parents are less able to mediate and monitor due to increasing amounts of time spent outside the home and as portable devices become more accessible (Kerr, Stattin, & Burk, 2010). Adolescence is a period of autonomy seeking and restrictive mediation (and other types of parental control) may decrease the chance that adolescents will openly disclose information to their parents, thus increasing negative adolescent outcomes (Kerr et al., 2010). Self- determination theory explores human motivation without external influence and interference (Grolnick, Deci, & Ryan, 1997). Autonomy and competence are two of the basic needs and serve as intrinsic motivation for a child, adolescent, and adult. Restrictive mediation, a form of parental control that does not generally allow for internally regulated values and behaviors, may counteract parental efforts as they guide and teach adolescents to begin to make independent and informed decisions. Adolescents require more freedom and responsibility to begin making their own choices, which may be encouraged through active rather than restrictive mediation.

Active mediation also coincides well with self-determination theory, granting more autonomy to child and adolescent behavior and attitudes in general as well as in regards to media. Parents encourage internally regulated values and open disclosure about media use and exposure to negative content when using active mediation (Grolnick et al., 1997; Kerr et al., 2010). Parent-child open disclosure at an early age may increase the likelihood of adolescent disclosure about friends, school, and daily activities including media consumption (Kerr & Stattin, 2000). Rather than requiring a child or adolescent to be compliant to the parental standards of media, parents teach and clarify their media standards, allowing critical thinking skills to be obtained (Grusec & Goodnow, 1994). However, parents must also be wary of

introducing topics that their child is not developmentally ready for, such as drug-related, sexual, or complex moral topics (Nathanson, 2002). A balance between restrictive and active mediation may be the most developmentally beneficial for children.

Social learning theory states children are very perceptive of what their parents are doing and may model their behaviors and attitudes towards media to conform to parents' use (Bandura, 1977). Unlike restrictive and active mediation, parents who co-view send an implicit message of approval of any media content consumed together by their mere presence of viewing the joint content, intentional or inadvertent. Children may also increase their use of media and learn behaviors and attitudes from this type of parental mediation. Co-viewing, as much as restrictive or active mediation, has the capacity to promote acceptance of positive as well as negative behaviors in the media.

Effects of Parental Mediation of Media

Parental mediation and media exposure are both factors in determining a host of child outcomes. As socialization agents, both media (Chakroff & Nathanson, 2008) and parents (Hogan, 2012) can influence children's attitudes, beliefs, and behaviors. The formative years of parental mediation research served to determine that parental mediation does indeed make a difference in children's lives. Subsequent research, however, goes beyond in describing the effectiveness of the mediation to investigating the cognitive and affective processes through which parental mediation influences children (Rasmussen, 2014). Research into these processes suggests that each type of parental mediation works first to alter children's perceptions of content presented in the media or the medium itself, whether on purpose or not. These altered perceptions then affect children's attitudinal or behavioral outcomes. For example, restricting an adolescent's cell phone use at school may help the adolescent recognize that the cell phone may

interrupt his/her academic progress and then he/she may choose to not use the medium during school. In the following sections, we examine how parental mediation may mitigate or exacerbate effects of media.

Restrictive mediation. Of the three types of parental mediation, restrictive is the most common type in American homes and has shown to be effective in reducing negative outcomes of media consumption during childhood (Kaiser, 2010). However, the research on restrictive mediation tends to be rather inconsistent, depending on the type of medium, content, or outcome analyzed. For example, restrictive mediation has been utilized by parents to decrease overall media use (i.e., Barradas, Fulton, Blanck, & Huhman, 2007; Carlson et al., 2010; Cillero & Jago, 2011; Livingstone & Helsper, 2008; Nathanson, 2002; Ramirez et al., 2011; Te Velde et al., 2011), but the use of content restrictions appear to increase the amount of time spent viewing television in at least one study (Vandewater, Park, Huang, & Wartella, 2005). Despite increasing the amount of time using media, rules regarding television content decrease the amount of violent and pornographic content (Livingstone & Helsper, 2008; Woolf, 2009), child entertainment (i.e., cartoons: Truglio, Murphy, Oppenheimer, Huston, & Wright, 1996), and increase educational and prosocial content viewed by children (Woolf, 2009). Both the amount of time spent consuming media and the content consumed are influential in child and adolescent behaviors and attitudes (Brown et al., 2006; Kaiser, 2010).

In terms of behavior and attitudes, restrictive mediation can be both positive and negative. Setting rules about television (Nathanson, 1998, 1999; Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013) , movies (Valkenburg et al., 2013), and video games (Abel-Cooper, 2001; Engelhardt & Mazurek, 2013; Valkenburg et al., 2013) is associated with decreased verbal and physical aggressive attitudes and behaviors such as name calling, pushing,

tripping and hitting in children and adolescents. However, other studies show that restricting time and content of television is related to an *increase* of imitated aggressive behavior (Vandewater et al., 2005), especially for younger children (Nathanson, 2002). The results are also inconsistent in terms of outcomes related to body image and eating concerns. General restrictive mediation is associated with increased body satisfaction (Schooler, Kim, & Sorsoli, 2006), lower BMI (Gentile, Reimer, Nathanson, Walsh, & Eisenmann, 2014; Vandebosch & Cleemput, 2007), and reduced consumption of unhealthy food in children and adolescents in some studies (Buijzen, 2009; Ochsenhirt & Kim, 2008; Yu, 2011). However, body dissatisfaction and obesity increase when restrictive mediation is used, although males and females are affected differently (Schooler et al., 2006; Vandebosch & Cleemput, 2007). Also, other research found restrictive mediation increased unhealthy food consumption, thus suggesting the necessity for further research (Harrison & Liechty, 2012; Sun, 2009). Finally, adolescents' likelihood of experimentation with substances (i.e., alcohol and tobacco: Dalton et al., 2006; Hanewinkel, Morgenstern, Tanski, & Sargent, 2008; Tanski, Cin, Stoolmiller, & Sargent, 2010) and sexual behavior (Ashby, Arcari, & Edmonson, 2006; Bersamin et al., 2008; Fisher et al., 2009; Guo & Nathanson, 2011; Parkes, Wight, Hunt, Henderson, & Sargent, 2013; Schooler et al., 2006) is decreased when parental restrictive mediation of time and content are utilized, although some findings suggest higher levels of restrictive mediation in regards to sexual content are associated with higher levels of sexual activity, potentially promoting a "forbidden fruit" complex in adolescence (Nikken & Graaf, 2013). Granted, though research has examined the influence the media has in regards to *adolescent* substance use and sexual outcomes, few have gathered data on how restrictive mediation influence *child* substance use and sexual outcomes. In sum, though there appears to be some evidence that restrictive mediation

may be a useful tool in mitigating harmful media effects, some areas are inconsistent and often depend on child characteristics, such as gender or age.

Active mediation. Active mediation is a means of exploring and clarifying media content between parents and their children, with an aim of helping children to become critical consumers of the media. In general, the research on active mediation tends to be less discordant compared to the restrictive mediation literature, though inconsistencies do exist. In terms of media time, active mediation is associated with fewer hours spent viewing media for children ages 2-11 (Barkin et al., 2006), especially for girls (Van den Bulck & Van den Bergh, 2000). However, little is known about whether active mediation influences time spent using media for preschoolers and older adolescents (Harrison & Liechty, 2012; Schooler et al., 2006). These active discussions with children about media increase informative and prosocial content (St. Peters, Fitch, Huston, Wright, & Eakins, 1991; Woolf, 2009) and reduce the amount of aggressive content (Nathanson, 1999; Ruh Linder & Werner, 2012) viewed by children and adolescents. Active mediation also decreases the amount of aggressive behavior in children and adolescents (Nathanson, 1998, 1999; Linder & Werner, 2012; Singer, et al, 1988; Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013). Specifically, when parents openly talk about violent television, children and adolescents develop negative attitudes towards programs that feature violence and aggressive characters, with a decreased likelihood of viewing violent television (Rasmussen, 2014). Current research on media time, media content, and aggressive behavior appear to have mostly positive results when parents use active mediation.

Active mediation is also used to discuss negative health issues, substance use, as well as sexual behaviors, however, the research tends to be more mixed concerning these outcomes. For example, some studies show that active mediation has positive influences, especially concerning

girls' body image (Schooler et al., 2006). Other research suggests that adolescent outcomes depend on how parents discuss body image content, whether using a positive, neutral, or negative context, with no foreseeable influence or an increase in body dissatisfaction and desire for thinness (Nathanson & Botta, 2003). Openly discussing advertisements also seems to show discrepant findings, especially when the age of the child is taken into account. For example, active mediation may increase desire for fast-food, candy, and salty snacks in small children, as well as increase their chances of being obese (Harrison & Liechty, 2012; Yu, 2011); whereas with older children, active mediation significantly reduces the impact of advertising on children's energy dense food consumption (Buijzen, 2009) suggesting that age may be a moderating variable in the effectiveness of active mediation. The type of media (i.e., television, internet, music) may also influence the efficacy of active mediation, with more types of media becoming increasingly available to all ages (Kaiser, 2010). Other research conducted on adolescents indicates that active mediation indirectly decreases BMI by lowering media time and increasing hours of sleep (Gentile et al., 2014).

There are also inconsistencies for active mediation in terms of substance use and sexual outcomes. For example, active mediation of substance use in the media was positively related to child substance use (Austin & Chen, 2003; Fujioka & Austin, 2003) suggesting that talking to younger children about substances is a maladaptive practice; whereas in adolescence, active mediation is effective in preventing and/or reducing substance use (Austin, Pinkleton, & Fujioka, 2000). Active mediation efforts can sometimes backfire and increase the likelihood of unprotected sex as well as negative sexual attitudes in adolescents (i.e., men are sex-driven or women are sexual objects: Guo & Nathanson, 2011); conversely, active mediation predicts fewer intentions for oral and vaginal sex (Fisher et al., 2009). In sum, there are a number of

inconsistencies for the active mediation literature, especially in terms of health behaviors,

substance use, and sexual outcomes. These inconsistencies may be due to a number of

moderating influences including differing measures, gender and age of child, and type of media

examined.

      Co-viewing. Research regarding co-viewing is also inconsistent on child and adolescent

behavior. Co-viewing is associated with increased child use of TV, films, music, and books

(Harrison & Liechty, 2012; Parkes et al., 2013; Sun, 2009). Parental co-viewing also influences

the time spent viewing specific types of media, including prosocial content (Woolf, 2009), as

well as adult-themed and aggressive content (St. Peters et al., 1991). In terms of aggression, co-

viewing has been shown to increase child and adolescent aggressive behavior and attitudes

(Nathanson, 1999, 2001; Vandewater et al., 2005); however results are more positive when

parents co-play video games (of all types) with their daughters, leading to a decrease in

aggressive behavior (Coyne, Padilla-Walker, Stockdale, & Day, 2011).

      Somewhat contradictory results have been found among the research regarding whether

parental co-viewing of media influences health outcomes and substance use. For example, co-

viewing is associated with fewer desires for fast-food in children in one study (Yu, 2011), but

more fast-food intake in another (Harrison & Liechty, 2012). Substance use has inconsistent

outcomes as well, with one study reporting a negative association between the two (Dalton et al.,

2006), while another reports a positive association (de Leeuw, Blom, & Engels, 2014). These

differences may be due to measurement differences, varying sample sizes and age of

participants. Finally, in terms of sexual content, studies agree that co-viewing sexual media with

adolescents is related to less risky behavior, including later initiation of sexual intercourse and

fewer sexual partners (Bersamin et al., 2008; Fisher et al., 2009; Guo & Nathanson, 2011). In all

regards, co-viewing is studied in fewer research projects and future research should focus on how it influences child and adolescent outcomes. Inconsistencies may arise in parental mediation of media research due to certain moderators within the data, which explain different trends and/or associations.

Potential Moderators

The central aim of this study is to examine whether parental mediation of media is successful in mitigating known media effects. The literature, in its current status, contains many inconsistencies that make this analysis difficult. A substantial piece of this instability develops due to the moderators presented below. For example, different types of mediation (i.e., restrictive, active, and co-viewing) may be more beneficial for different ages, genders, media, etc. We have organized our analyses to account for these various moderators as described below.

First, several studies have detected gender differences between the types of media and mediation. As such, *gender* was examined as one moderator in the study (Lin & Atkin, 1989; Schooler et al., 2006; Vandebosch & Cleemput, 2007). Additionally, the *medium* being monitored may moderate effects, with television and video games among the most highly monitored media (Carlson et al., 2010; Harrison & Liechty, 2012; Patriarca, Giuseppe, Albano, Marinelli, & Angelillo, 2009; Ramirez et al., 2011). Parental mediation may also function differently for different *ages of children.* For example, one major developmental task of adolescence involves developing a sense of autonomy (Steinberg, 2013). Consequently, restrictive mediation may be a positive parental tool in childhood, but less so in adolescence where developing autonomy is a more essential developmental task. Additionally, certain types of active mediation may be more effective for an adolescent audience that may have developed the higher order functioning necessary to digest complicated media messages (Barradas et al.,

2007; Nathanson, 2002). *Education of parents* was also considered as a factor to discover

whether higher educated parents were more likely to use the different styles of mediation than

lower educated parents (van der Voort, Nikken, & van Lil, 1992). We explored whether different

types of mediation influenced child and adolescent *attitudes or behaviors* more and also

considered whether *study design* (i.e., cross-sectional, longitudinal, correlational, or

experimental), *reporter (i.e., parent report, child report, both) person mediating* the media (i.e.,

parent or researcher) and *type of publication* (i.e., published or unpublished) would moderate the

magnitude of the association between parental mediation and the outcomes.

Current Study

The research on parental mediation of media on child and adolescent outcomes tends to

be mixed and contradictory. This study will use meta-analytic techniques to examine the

following research questions:

RQ1. What is the association between restrictive mediation and the specified child and

adolescent outcomes?

RQ2. What is the association between active mediation and the specified child and adolescent

outcomes?

RQ3. What is the association between co-viewing and the specified child and adolescent

outcomes?

RQ4. What moderates the above associations between parental mediation and the child and

adolescent outcomes?

Each type of parental mediation of media (restrictive, active, and co-viewing) will be examined

in relation to a number of child attitudes and behaviors, specifically, media time, media content,

aggression, negative health outcomes (i.e., body image and obesity), substance use, and sexual

behavior. As this is the first meta-analysis conducted on parental mediation, we chose these child

and adolescent outcomes due to (1) their frequency in media content, (2) research showing real-

world problems in children (i.e., society is concerned about children being aggressive,

overweight, having poor body image, engaging in risky sex, and using substances) and (3) each

of the outcomes having been examined in the context of parental mediation. Our analyses will

differentiate between the types of mediation and will assess how the different styles of mediation

influence outcomes. A number of potential moderators will also be explored, such as age of the

child and education of the parent(s).

Method

Search Strategies

In order to obtain all relevant studies for this meta-analysis, a three-step approach was

used. First, a team of eight trained undergraduate students used PsychINFO, MEDLINE,

Communication & Mass Media Complete, and Google Scholar as databases. The following key

words were used: *parent*, caregiver*, guardian*, adult*, media, television*, movie*, internet*,*

video games, mediation, coviewing, co-viewing, coplaying, co-playing, active mediation,

restrictive mediation, rules, cocooning, guidance, evaluative guidance, explanation, instructive

mediation, interpretive mediation, active co-use, active couse, evaluative mediation, pre-arming,

prearming, television cohesion, promotive mediation, and *discussion.* These searches covered

journal articles, master's theses, and doctoral dissertations from the year each database started

until July 2014. Once valid articles were found, the reference sections were reviewed to find any

relevant media mediation studies to include in this meta-analysis. Finally, authors publishing at least two studies on parental mediation of media were contacted to request any unpublished studies in order to explore potential publication bias. Of the studies reviewed in the initial search, 114 were found to be relevant to this study as explained next.

Inclusion Criteria

To be included in this meta-analysis the articles had to meet four criteria. (1) The study needed to include some measure or manipulation of parental mediation including active mediation, restrictive mediation, co-viewing, or a combination of the three, regardless of the medium used. Although a few studies distinguished between positive, neutral, and negative active mediation, each was collapsed into general active mediation; similarly intentional and passive co-viewing were equally non-distinguished and were collapsed into general co-viewing. (2) Each study needed to contain one of the specified child outcomes in regards to attitudes or behaviors: media use (i.e., content and time), aggression, negative health outcomes (body image and obesity), substance use, or sexual behavior. Originally, we planned to keep body image and obesity outcomes separate, but too few studies were conducted on body image to be included in this analysis. Body image, therefore, was combined with BMI for an overall health outcome. This was found to be true with media content and media time as well, which were also combined into a general media use variable. (3) There must have been a zero-order correlation, partial correlation, beta coefficient, odds ratio, log rate ratio, or a t-test. (4) Finally, we only included the studies that presented outcomes for children under the age of 18. Individuals 18+ are typically no longer constrained to their parents' media regulations and were not included in the current meta-analysis.

Of the 114 studies that met the initial inclusion characteristics, 37 were excluded for not

containing the right statistical data (i.e., hazards ratio, relative risk ratio) to analyze despite

efforts made to contact corresponding authors for the statistics. Additionally, several studies used

the same dataset for multiple publications; accordingly, 13 reports were collapsed into 5 studies

in our sample. Of the initial 114, 69 studies were included in the quantitative synthesis,

representing N=45,072 total participants (see figure 1).

Measures of Child and Adolescent Outcomes

Media use was the most common outcome with parental mediation as the predictor

(k=26), followed by aggression (k=21), obesity (k=12), substance use (k=7), sexual outcomes

(k=6), media content (k=4) and body image (k=3). Of the 69 studies, child reports of the

variables were most common (k=30), with parent reports (k=21), and both report (k=16) well

represented; correlational studies were most common (k=62), followed by longitudinal (k=2) and

experimental (k=1).

Media time/content. Media use included the time spent engaging with any electronic

form of media (i.e., television, videogames, movies). Additionally, time with specific content

was also examined (i.e., prosocial, aggressive, educational, etc.).

Aggression. Child and adolescent aggression was analyzed if a study contained verbal,

physical, or relational aggressive attitudes and/or behaviors, also known as antisocial behavior as

an outcome. Sexual aggression was not included in this analysis.

Body image. Body image is comprised of both male and female responses to issues

dealing with body image, such as the "thin ideal," body dissatisfaction, body dysmorphia,

muscular ideal, etc.

Obesity. The obesity outcome is comprised of several different constructs related to unhealthy habits, including food intake (both healthy and unhealthy), body mass index, and desires for unhealthy food (fast-food, soft drinks, candy, etc.) in relation to advertisements, screen time, and other media.

Substance use. Substance use included variables of children and youth consuming substances (i.e., alcohol, tobacco, and other licit and illicit drugs), attitudes toward substance use, their likelihood of consuming substances, or their desires for substances.

Sexual outcomes. Child and adolescent attitudes or behaviors in reference to sexual behavior (i.e., kissing, petting, and any form of oral sex or vaginal intercourse) were collected to further understand sexual outcomes in relation to parental mediation of media.

Coding of Studies

The following variables were analyzed from each study: (a) *outcomes* (i.e., media content, media time, aggression, body image, obesity, substance use, and sexual behavior), (b) *type of mediation* (i.e., restrictive, active, or co-viewing/co-playing), (c) *study design* (i.e., cross-sectional and longitudinal), (d) *media viewed/type* (i.e., TV, video game, internet, movies/videos, or multiple media), (e) outcome being a change in *attitude* or *behavior* in childhood or adolescence (i.e., attitudes towards sexual behavior or sexual behavior itself)*, (f) average education of parents* (high school or less and some college or more), (g) *average age of child* (i.e., childhood (3-9 years), adolescence (10-17 years), (h) *reporter (i.e., parent report, child report, both),* (i) *person mediating* the media (i.e., parent or researcher) and (j) *type of publication* (i.e., published or unpublished data). Eight independent coders were trained on variable definitions and identification by jointly coding examples and openly discussing coding protocols as they were applied. To maintain consistency, coders were split into four groups of

two with each group being given about 39 articles to independently code. Coding pairs then came to 100% consensus on all coding by returning to studies and discussing any coding differences.

Computation of Effect Sizes

To analyze the results, Comprehensive Meta-analysis II (CMA) software was used. All effect sizes were converted to the Pearson correlation coefficient (r). In the case where the correlation coefficients were not reported (k=30), we contacted corresponding authors via e-mail to obtain r. If no response from authors was given (k=20), we used other available statistics (e.g. partial correlation coefficients) and transformed them into r's. In cases where studies reported the standardized regression coefficient (β) without any additional statistics available to calculate an effect size, and the authors were unable to provide us with the data, we used a deterministic imputation formula ($r = \beta + .05\lambda$ where λ is 1 if β is non-negative and 0 if β is negative) to transform β's into predicted r's for use in our meta-analysis (Peterson & Brown, 2005). Although this imputation has limitations, it is superior to replacing the missing correlations with zero or with the mean of all the correlations (Peterson & Brown, 2005). This was the case for 20 of the studies.

For the studies that reported multiple effect sizes (e.g., separate correlations for substance use attitudes and substance use behaviors), we used a shifting unit of analysis approach thus recording each statistical test as if it were an independent sample (Cooper, 1989). In order to provide an overall effect size estimate, the four effect-size estimates were averaged. By doing so, the shifting unit of analysis retains as much data as possible without violating the independence assumption that underlies the validity of meta-analytic procedures.

Statistical Analyses

The analyses were conducted separately for each of the different types of mediation (active, restrictive, and co-viewing/co-playing), as well as each of the moderators specified above. Analyses were only performed when there were five or more independent effect size estimates available to discourage interpreting underpowered analyses. Analyses were conducted using a random effects model to assess the heterogeneity in various subsets of studies. This model enables the results of this study to be generalizable outside of the articles included in this meta-analysis (Borenstein, Hedges, Higgins, & Rothstein, 2010; Hunter & Schmidt, 1990).

Each correlation coefficient underwent a fisher z-transformation to normalize its distribution (Silver & Dunlap, 1987). The average effect size for each outcome was obtained and transformed back into Pearson's r for interpretation. The pooled estimate of r is denoted as r_+. Significant differences between the zero-order correlations and the transformed β's were checked and found to be statistically similar, except for those in the active mediation meta-analysis, which results should therefore be interpreted with some caution. The Comprehensive Meta-analysis software (CMA) was used to examine the overall effect size when each study effect was removed one at a time. There were no substantial changes in the overall effect size.

Finally, to explore heterogeneity between the outcomes, a Q-test was performed (Borenstein et al., 2010). Also, an analysis was conducted to explore the possibility of publication bias (also called selection bias) or the idea that only studies with significant results are published and those with nonsignificant results are less likely to be published. To examine the potential of selection bias, we used the trim and fill procedure (Duval & Tweedie, 2000).

Results

Restrictive Mediation

The overall effect size between restrictive mediation and the various child outcomes was significant, $r_+ = -.07, p < .001$, 95% CI [.03, .10], $k = 45$. The analyses revealed significant relationships between restrictive mediation and sexual outcomes, $r_+ = -.10, p < .01$, 95% CI [.04, .17], $k = 6$; and media use, $r_+ = -.06, p < .05$, 95% CI [.01, .11], $k = 29$; but nonsignificant findings for aggression, health outcomes, and substance abuse, though they were in the expected direction. No substantial outliers are confounding these effects. See Table 1 for all restrictive mediation point estimates and Q values. In order to account for publication bias or potential missing studies that would bias the restrictive mediation effect size, Duval and Tweedie's trim and fill procedure was utilized suggested six missing studies to the right of the mean producing a weaker effect size, $r_+ = -.09$, 95% CI [.05, .13].

Moderator analyses. A heterogeneity analysis revealed a significant variation for the restrictive mediation data, $Q = 417.72, p < .001$, justifying follow-up moderator analyses. As such, the effect sizes of the following moderators were analyzed, being theoretically supported to account for the heterogeneity: education of parents, medium used, age of child, as well as whether the type of parental mediation influenced an attitude or behavior.

Despite the significant heterogeneity of the data, the type of media used was the only moderator found to explain heterogeneity of the data ($Q = 14.11, p < .01$), as restrictive mediation affects multiple media ($r_+ = -.06, p < .05, k = 14$), was trending for both TV/movies/videos ($r_+ = -.07, p = .06, k = 26$) and was not significant for video games/internet ($r_+ = -.05, p = .24, k = 6$). Contrary to theory, age of child did not account for the heterogeneity

($Q = 0.81$, $p = .67$) and neither did attitudes/behaviors ($Q = 0.75$, $p = .86$), study design ($Q = .08$,

$p = .78$), person mediating ($Q=0$, $p = 1$), or type of publication *($Q = 4.53$, $p = .10$)*.

Active Mediation

The overall effect size between active mediation and the various child outcomes was

nonsignificant, $r_+ = -.01$, $p = .93$, 95% CI [-.05, .05], $k = 31$. The meta-analyses revealed

significant relationships between active mediation and aggression, $r_+ = -.09$, $p < .01$, 95% CI

[.03, .15], $k = 6$; and sexual outcomes, $r_+ = -.06$, $p < .01$, 95% CI [.02, .10], $k = 5$; but substance

use was underpowered due to a lack of studies and nonsignificant findings for negative health

outcomes and media use. No outliers are substantially distorting these effects. All active

mediation point estimates and Q values can be seen in Table 2. The trim and fill procedure

suggested possible bias in the active mediation results with five potential missing studies to the

left of the mean producing a weaker effect size, $r_+ = -.03$, 95% CI [-.09, .02].

Moderator analyses. A heterogeneity analysis revealed significant variation for the

active mediation data, $Q = 199.66$, $p < .001$, justifying follow-up moderator analyses. However,

none of the existing moderators significantly explained the heterogeneity among the active

mediation meta-analysis.

Co-viewing

The overall effect size between co-viewing and the various child outcomes was

significant, $r_+ = .09$, $p < .001$, 95% CI [.05, .12], $k = 29$. The meta-analyses revealed significant

relationships between co-viewing and aggression, $r_+ = .09$, $p < .01$, 95% CI [.03, .16], $k = 12$;

and media use, $r_+ = .12$, $p < .001$, 95% CI [.08, .15], $k = 13$; but substance use, sexual outcomes,

and media use contained an insufficient amount of studies for analysis. No outliers are

substantially distorting these effects. See Table 3 for all co-viewing mediation point estimates

and Q values. The trim and fill test did not reveal evidence of publication bias in the co-viewing results.

Moderator analyses. A heterogeneity analysis revealed significant variation for the co-viewing data, $Q = 110.18$, $p < .001$, justifying follow-up moderator analyses. Studies that examined behavioral outcomes had a significantly greater effect size ($r_+ = .08$, $p < .001$, $k = 28$) than those that examined attitude outcomes ($r_+ = .05$, $p = .39$, $k = 3$); ($Q = 11.62$, $p < .01$). None of the other moderators explain the significant heterogeneity of the data.

Discussion

The purpose of this meta-analysis was to synthesize the research on the effectiveness of different types of parental mediation of media and commonly researched outcomes in childhood and adolescence. Essentially, three separate meta-analyses were performed, one for each type of parental mediation of media: restrictive mediation, active mediation, and co-viewing. Once separated, we analyzed associations between type of parental mediation and child/adolescent outcomes, specifically: media time and content, aggression, negative health issues (i.e., body image and obesity), substance use, and sexual outcomes. Moreover, we examined a number of potential moderators including age of child (i.e., child versus adolescent), media type (i.e., TV/movies/videos, video games/internet, and multiple media used), and whether the outcome was a change in attitude or behavior. Meaningful analyses on parental education, person mediating, type of publication, and study design were not reported due to insufficient variation or reports on the variable.

Restrictive Mediation

The intent of restrictive mediation is to protect children from negative media influences. Overall, the results revealed that restrictive mediation of child and adolescent media plays a

small, but statistically significant role in preventing negative outcomes, but appears to be driven by two specific outcomes: media time and sexual outcomes.

The findings of this meta-analysis suggest that parental restrictive mediation may help to decrease the amount of time children spend with media, as children are far exceeding the suggested amount of media the AAP has deemed ideal for development (Rideout et al., 2010). Restrictive mediation also decreases child and adolescent exposure to mature content (Busman & Anderson, 2009; Dalton et al., 2003; Escobar-Chaves et al., 2005; Eyal & Te'eni-Harari, 2013). Media time and content may be directly influencing the child outcomes, thus potentially mediating the interaction between restrictive mediation and the child outcomes, such as academic performance (Cummings & Vandewater, 2007;Wiecha & Sobol, 2001) and physical well-being (Cain & Gradisar, 2010; Olds, Ridley, & Dollman, 2006; Christakis et al., 2004). Future research should explore these potential mediational effects in greater depth. These results support the general goal of parental monitoring, in that parental supervision and control protects children and adolescents from harmful exposure of media and negative outcomes.

Restrictive mediation is also a predictor of later and fewer sexual outcomes for children and adolescents. Reports have shown the consistent predictive nature of sexual media for child and adolescent sexual behavior (Brown & Bobkowski, 2011b). Consequently, by implementing specific time and content rules about media, parents limit child exposure to media and assist in preventing unwanted early sex, pregnancy, and multiple partners for their child or adolescent. Therefore, these results coincide with previous reports of parental monitoring and restrictive mediation helping to prevent negative sexual outcomes in children and adolescents (DiClemente et al, 2001; Fisher et al., 2009; Schooler et al., 2006).

The meta-analysis revealed that restrictive mediation had no direct impact on aggression, substance use, or negative health outcomes in children and adolescents. This may be due to insufficient studies on the topics or the contradictory nature of the results, as it was for aggressive outcomes; three of the five studies on aggression (Engelhardt & Mazurek, 2014; Valkenburg et al., 2013; Vandewater et al., 2005) found conflicting information regarding whether restricting media predicts aggressive behavior in children and adolescents, thus leading to an overall inconclusive result in this meta-analysis. Similarly, restrictive mediation did not predict substance use, in part, due to the low number of studies or the conflicting results in regards to restrictive parental mediation. Instead of restricting exposure to media with or without substance use, parents may have greater likelihood of preventing child and adolescent substance use by using active mediation, as will be discussed later. Restrictive mediation may also not have any direct influence on body image or obesity. Current media mainly portray the thin-ideal, perhaps having such a strong impact on children and being so potent that despite parents' best efforts to restrict media time and content, children are still influenced by the thin-ideal (i.e., Brown & Bobkowski, 2011b).

From the moderation analyses, restrictive mediation appeared to be more effective in studies that examined multiple media types or television and movies. Hand-held devices and tablets are prevalent in the average home, through which children and adolescents can access multiple types of media including music, games, TV shows, movies, as well as other various forms of media. By having general rules that apply to all media as opposed to individual media specific (i.e., only internet or only video games), children and adolescents are more likely to understand and develop self-regulation or the ability to interpret, monitor, and control one's emotions and behaviors to reach a desired goal for *all* media types (Moilanen, Shaw, &

Fitzpatrick, 2010). Parents who explain the reasoning behind certain media restrictions increase

the likelihood that their child will internalize personal standards for media and understand the

influence that media has on their thoughts and behaviors.

Contrary to previous findings (Nathanson, 2002) and self-determination theory (Grolnick

et al., 1997), restrictive mediation was not found to influence children and adolescents

differently. Current measurements of restrictive mediation may not be sensitive enough to

distinguish between hard restrictive rules of media early in childhood and the looser rules parents

may set in adolescence that allow teens the autonomy that they are seeking while maintaining

sufficient media boundaries. Nor are current measures likely to catch a shift in the rule strictness,

whether they be gradual or abrupt. Parental limitations of media, in moderate amounts, have

proven effective in adolescents, thus allowing some flexibility between the teen and parent on

media rules (Guo & Nathanson, 2011). Parents may use active mediation in addition to their

previously held restrictive media rules, which when combined, may be most effective (Gentile et

al., 2014). Further research should focus on the comparison of single and combined influences of

active and restrictive mediation.

Active Mediation

The purpose of active mediation is to openly discuss media content with children and

adolescents to help them develop critical thinking skills about the content being consumed. The

current study found that active mediation may provide a protective effect on children's

vulnerability to negative effects of media on aggression, substance use, and sexual outcomes;

whereas active mediation had no significant influence on media time and negative health issues

(body image and obesity). None of the moderators explained the variation of the results.

Consistent with self-determination theory (Grolnick et al., 1997; Kerr et al., 2010), discussions

with parents about media content may provide children and adolescents with the autonomy to

develop critical thinking skills to decipher the realistic portrayals of aggression, substance use,

and sexual behavior in the media.

Our results revealed that active mediation was associated with lower levels of aggression,

whether it be physical, relational or verbal, in children and adolescents. By using active

mediation, parents are able to discuss appropriate and realistic attitudes and behaviors, thus

helping children and adolescents develop a more critical view of aggressive behavior.

Aggression is rampant in television programs, films, video games, and music (Anderson et al.,

2003). This may be one reason why restrictive mediation was not particularly effective in

reducing aggressive behavior. Even with a reduction in media time, children still get a strong

message from the media that aggression is often justified and normative. Instead, parents can use

active mediation to try to combat these messages from the media. They can teach children that

aggression is *rarely* justified, *not* normative, and results in very real and long-lasting

consequences, a message that the mass media typically does not send. Our research suggests that

active mediation represents one tool that parents have in the fight against the effects of media

violence on their children.

Similar to restrictive mediation, active mediation was a predictor of later and fewer

sexual outcomes in children and adolescents. These have important implications for parents who

feel uncomfortable talking to their children about sex; media may provide parents with an

opportunity to discuss sex and convey their values and attitudes without forcing their values on

their children (which forceful control may backfire on the parents: Valkenburg et al., 2013).

Casual, non-threatening conversations about sex may have a greater influence on children and

adolescents than the sex in the media, especially when children are taught to critically analyze the media through these conversations (Guo & Nathanson, 2011).

Body image and weight issues have become an increasingly popular topic in today's media. Contrary to our expectations, body image was not significantly influenced, positively or negatively, when parents actively discussed media content with their children. Perhaps peer associations more heavily influence children and adolescents than parental active mediation (Veldhuis, Konijn, & Seidell, 2014) or formal media literacy programs may be a better predictor than parental mediation of media (Chakroff & Nathanson, 2009). Parents may also struggle to know how to best discuss body image and obesity with their children. In an effort to counteract the negative effects, parents may be drawing their child or adolescent's attention to the thin-ideal or muscular-ideal that the media portrays.

 It should be noted that there are at least three different types of active mediation (positive, negative and neutral), but few studies distinguish between them. Despite different types of active mediation likely having varying results, we were unable to separate these forms of active mediation in the current analysis. Future research should differentiate between the varying types of active mediation to explore in greater detail what the influences are on children and adolescents.

Children and adolescents live in a media saturated world. The media may be one powerful socializing factors in the development of normative beliefs and social norms (Brown & Bobkowski, 2011a). Our results suggest that as children begin to develop unrealistic ideologies about aggression, substance use, and sexual outcomes, active mediation may provide the conduit for parents to give children a model of what attitudes and behaviors are appropriate and realistic. Self-determination theory emphasizes adolescents' need for autonomy and competence for

optimal growth; an open discussion with parents allows children and adolescents to know

parents' values, use their autonomy to choose whether to emulate or find their own values, and

critically analyze future media (Grolnick et al., 1997).

Co-viewing

Co-viewing is considered any parental consumption of media with a child or adolescent

devoid of discussion about the media content. Our findings indicate that co-viewing is associated

with increased aggression and media use; however, it is difficult to conclude how co-viewing

influences negative health outcomes, substance use, or sexual outcomes due to the lack of studies

on the subject. Also, results reveal that co-viewing has greater influence on child and adolescent

behaviors than attitudes.

We found that child and adolescent media use increases when parents are regularly co-

viewing. In accordance with social learning theory (Bandura, 1977), children and adolescents

mimic the media consumption habits of live models, their parents. When consuming media with

parents, children and adolescents see the rewards of such behavior (i.e., family time; relaxing in

front of the TV, computer, etc.) and then consume more media outside the direct supervision of

parents. Increased media use positively correlates with a host of negative child and adolescent

outcomes, including aggressive behavior (Nathanson 1999), TV-induced fear (Paavonen, Roine,

Pennonen, & Lahikainen, 2009), poor academic performance (Cummings & Vandewater, 2007)

and attention problems (Christakis, Zimmerman, DiGiuseppe, McCarty, 2004); thus suggesting

that parents need to be aware of the example they are setting of media consumption.

Co-viewing was also significantly related to higher levels of aggression for both children

and adolescents. Most media send a powerful message regarding the acceptability and

consequence free nature of aggressive behavior (Coyne & Archer, 2004; Huesmann et al., 2003),

which gives children more reason to assimilate these aggressive behaviors as their own. Parents send an implicit message of approval towards any media content consumed together, in this instance aggression, simply by their mere presence of viewing the joint content, regardless of one word being spoken (Nathanson, 1999).

Child and adolescent behavior was found to be significantly influenced by co-viewing, however, too few studies on attitudes were available for an accurate comparison with behaviors. Consistent with social learning theory, children model the behavior they see around them whether it be live models, such as parental behavior, or symbolic models, such as the behavior they view on television (Bandura, 1977). Children observe a type of behavior and the perceived consequence, deciding to model rewarded behavior.

The overall co-viewing findings suggest that parents should be wary in what they view and how much they view with their children and adolescents, as parents may implicitly be giving their consent for numerous behaviors in the media. Social learning theory alludes that children will mimic media habits as well as behaviors and attitudes they view on TV (Bandura, 1977). One limitation of the current research is that far too few studies have investigated co-viewing's influence on negative health outcomes, substance use, and sexual outcomes, in addition to differentiating between intentional and passive co-viewing. Future research should focus on parental intentions for purposeful co-viewing in which parents hope to give approval of said media and teach values (Chakroff & Nathanson, 2008); whereas other research should continue to explore the influence passive co-viewing has on children and adolescents, especially in regards to negative health outcomes, substance use, and sexual outcomes.

Gaps in the Literature and Directions for Future Research

The parental mediation of media literature is growing but in comparison to the rate of child media consumption as well as the availability of media, the progress is insufficient. The above findings are preliminary at best due to the limited focus researchers are putting towards this pertinent issue. As children and adolescents continue to use mass amounts of media to communicate (i.e., with friends and family), to entertain, and to learn (i.e., both positive and negative issues), parents and researchers are left to wonder what role parents play in a child's media consumption.

Parental mediation of media, as stated earlier, should be included in the parenting literature (i.e., parental monitoring) and yet the topic consistently remains in the communications field. Parental monitoring of academics, daily activities, and peers maintain the focus of parenting scholars, and many of the same issues in these areas are being dealt with in the parental mediation of media such as guiding children's media content selection, time management, how to prepare for negative experiences (i.e., mature content), and how to interpret the messages given to child through media (Mounts, 2011). The parental monitoring conceptualization is even being reevaluated, with current measures discovering that parents are learning more about their child's daily activities from the child's disclosure, than previous parental monitoring measures (i.e., parental control and solicitation), which may be the case in terms of media as children obtain their own devices and are exposed to media in all aspects of their lives (Kerr, Stattin, & Burk, 2010). Open disclosure may be linked to active mediation in early childhood; when parents discuss media choices and central themes with their children, and they may be more likely to share their media choices with parents (open media disclosure), especially as parents give more autonomy to their adolescents. This area of research needs to combine both the communications

and parenting literature to adequately question, analyze and more fully comprehend how parental mediation of media may help mitigate the negative influence media has on children and adolescents.

Greater effort needs to be used to disentangle the nuanced aspects of parental mediation of media. Most authors did not distinguish between different types of active mediation or co-viewing, thus requiring us to combine them into general categories in our analyses. As a result, the samples of studies measuring child and adolescent outcomes were limited and impeded moderator analyses for each of the outcomes. By not disentangling the types of mediation, it was difficult for us to obtain conclusive results. For example, most authors did not differentiate between parents who were critical of sexualized media and those who praised sexualized media, labeling both as active mediation. Similarly, intentionally co-listening to prosocial music and therefore attempting to bond with a child while promoting good morals should be separated from parents who passively co-listen to whatever is playing on the radio and unintentionally give consent to aggression, sex, and substance use. By increasing the amount of studies on the varying types of parental mediation, parents and researchers will know how to better mediate children's consumption of media for optimal child and adolescent development.

This meta-analysis found all types of parental mediation to influence children and adolescents similarly, which contradicts previous research (Nathanson, 2002); however, the cross sectional nature of previous research is a significant limitation. Only two longitudinal studies on this topic have been reported (Nikken & de Graaf, 2013; Gentile et al., 2014), neither of which focused on the transition from childhood to adolescence. Future research should focus on longitudinal methods to discover how parental mediation impacts children and adolescents in the long term, as well as whether parental mediation changes between childhood and adolescence.

Conclusion

Our meta-analysis found that parental mediation of media is a small, but significant predictor of several child and adolescent outcomes including media time, aggression, substance use, and sexual outcomes. The media has become an integral part of daily life among families and may at times feel all-consuming, but parents have the ability to mitigate some of the adverse effects through parental mediation of media. Our understanding of parental mediation of media will maintain a slow progression until parenting and communications scholars collaborate, recognizing this as a serious developmental issue; increased detail among the various parental mediation of media measures are created; and longitudinal methodology, especially across childhood and adolescence, is utilized to discern the adapting strategies parents use for different developmental periods. Parents need to educate themselves on the harmful and beneficial effects of media and use that knowledge for appropriate parenting such as creating rules for media use; discussing character's choices and central themes; and consuming media together.

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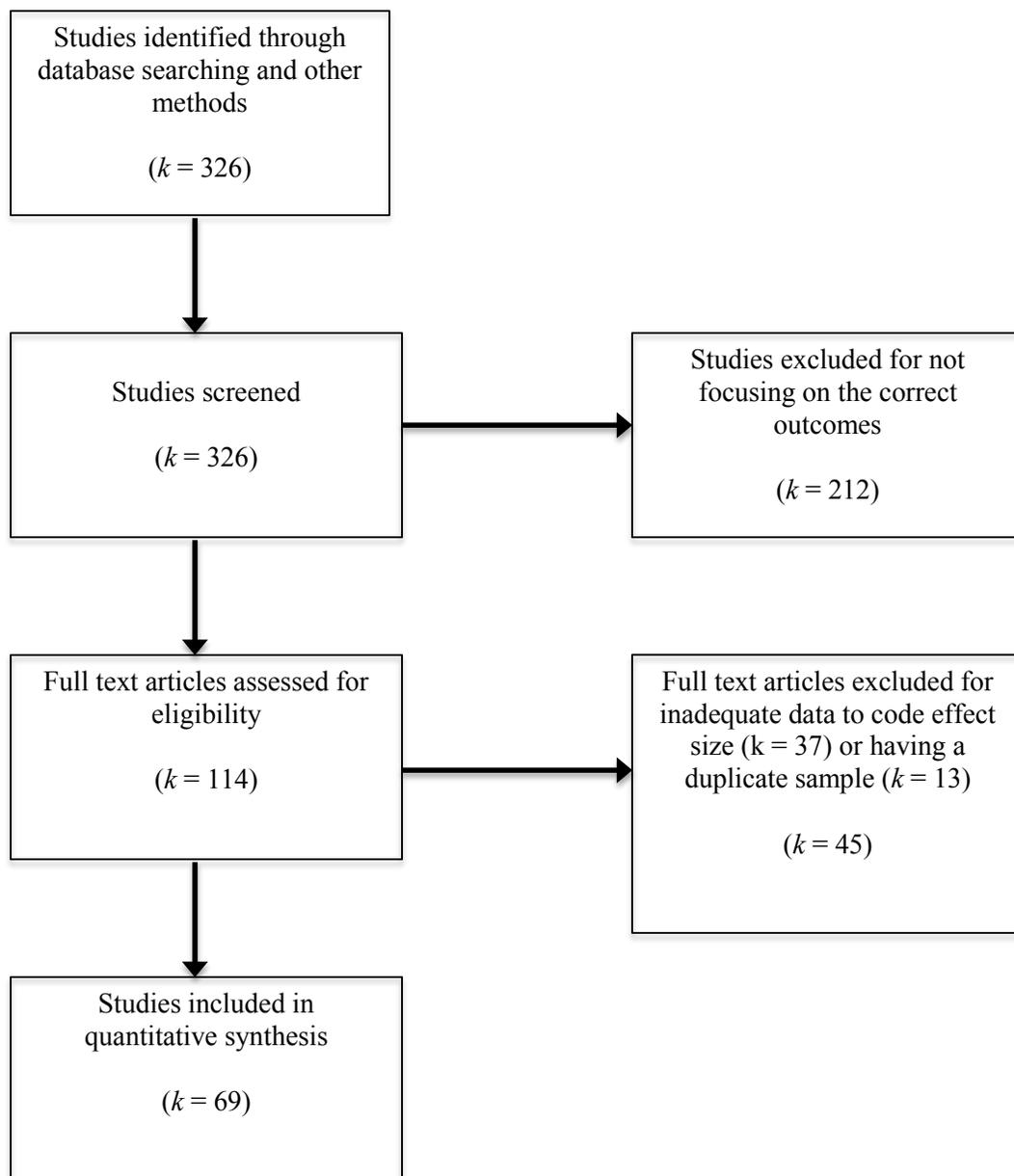
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Figure 1. Flowchart of inclusion/exclusion decisions.

Table 1

Characteristics of Restrictive Mediation on Study Variables

	Number of studies (k)	Point estimate	p-value	Q-Value	p-value for Q statistic
Restrictive Mediation	45	-0.07	0.001	417.72	0.000
Outcomes					
Media time/Content	29	-0.06	0.014		
Aggression	05	-0.04	0.494		
Negative Health Outcomes	10	-0.05	0.329		
Substance Use	03	-0.06	0.545		
Sexual Outcomes	06	-0.10	0.003		
Moderators					
Parent Education	45	-0.07	0.000	20.54	0.000
High School or Less	03	-0.10	0.096		
College	18	-0.03	0.497		
Medium Used	45	-0.04	0.038	14.11	0.003
TV/Movies/Videos	26	-0.07	0.061		
Video Games/Internet	06	-0.05	0.241		
Multiple Media Used	14	-0.06	0.030		
Age of Child	46	-0.06	0.000	0.81	0.665
Childhood (3-9 years)	10	-0.11	0.072		
Adolescence (10-17 years)	35	-0.05	0.012		
Attitudes vs Behaviors	46	-0.07	0.000	0.75	0.860
Attitudes	08	-0.07	0.001		
Behaviors	44	-0.06	0.003		

Table 2

Characteristics of Active Mediation on Study Variables

	Number of studies (k)	Point estimate	p-value	Q-Value	p-value for Q statistic
Active Mediation	31	-0.01	0.925	199.66	0.000
Outcomes					
Media time/Content	16	0.01	0.687		
Aggression	06	-0.09	0.002		
Negative Health Outcomes	07	0.14	0.113		
Substance Use	04	-0.11	0.002		
Sexual Outcomes	05	-0.06	0.003		
Moderators					
Parent Education	31	-0.02	0.464	5.44	0.066
High School or Less	02	-0.05	0.163		
College	16	-0.05	0.202		
Medium Used	31	-0.00	0.935	1.95	0.376
TV/Movies/Videos	22	-0.01	0.635		
Video Games/Internet	02	0.12	0.189		
Multiple Media Used	07	-0.00	0.930		
Age of Child	31	-0.00	0.986	1.24	0.266
Childhood (3-9 years)	11	-0.04	0.352		
Adolescence (10-17 years)	20	0.02	0.543		
Attitudes vs Behaviors	31	-0.03	0.202	3.69	0.158
Attitudes	13	-0.07	0.011		
Behaviors	27	0.01	0.578		

Table 3

Characteristics of Co-Viewing Mediation on Study Variables

	Number of studies (k)	Point estimate	p-value	Q-Value	p-value for Q statistic
Co-viewing Mediation	29	0.09	0.000	110.18	0.000
Outcomes					
Media time/Content	13	0.12	0.000		
Aggression	12	0.09	0.004		
Negative Health Outcomes	03	0.04	0.644		
Substance Use	02	0.01	0.922		
Sexual Outcomes	03	0.03	0.506		
Moderators					
Parent Education	29	0.09	0.000	0.03	0.984
High School or Less	02	0.09	0.006		
College	20	0.09	0.002		
Medium Used	29	0.11	0.000	3.13	0.210
TV/Movies/Videos	14	0.06	0.076		
Video Games/Internet	13	0.12	0.000		
Multiple Media Used	02	0.12	0.000		
Age of Child	29	0.09	0.000	0.22	0.641
Childhood (3-9 years)	07	0.10	0.000		
Adolescence (10-17 years)	22	0.08	0.001		
Attitudes vs Behaviors	29	0.05	0.001	11.62	0.003
Attitudes	03	0.05	0.388		
Behaviors	28	0.08	0.000		