MASS COMMUNICATION AND SOCIETY
https://doi.org/10.1080/15205436.2021.1996609

Routledge
Taylor & Francis Group

Are You Frightened? Children's Cognitive and Affective Reactions to News Coverage of School Shootings

Gyo Hyun Koo

School of Journalism, The University of Texas at Austin, Austin, TX, USA

ABSTRACT

As news involving violence can frighten children, people worry that news portrayals of gun violence are often appalling. Based on cultivation theory and the theory of cognitive development, this study examined parents' perceptions of the children's exposure and reactions to news coverage of school shootings. A survey of U.S. parents (N = 266) demonstrated that children's exposure to news coverage of school shootings is positively related to children's frightened responses, according to the parents' perspective. Parents reported that children more exposed to the news are more likely to perceive the world as dangerous. Children's frightened reactions were a mediator that explains the relationship. Parents also answered that depending on children's cognitive developmental stages, children showed different coping strategies to frightening news. Parental mediation did not have a significant relationship with children's frightened responses. Theoretical and practical implications of the findings are discussed.

Introduction

Many American children and parents live with traumatic experiences and memories caused by school shootings (Mazzei & Jordan, 2019). According to the Diliberti et al. (2019), U.S. public schools had ~3,600 incidents that involved a firearm or explosive device during one academic year. Popular press reports suggested that children in the U.S. worry about school shootings, and many experienced distress and fear of attending school (Wong, 2019).

While being raised in an anxious atmosphere about the possibility of a school shooting (Graf, 2018), exposure to news coverage may be a factor that aggravates

CONTACT Gyo Hyun Koo gkoo@utexas.edu School of Journalism, The University of Texas at Austin, 300 W Dean Keeton St, Austin, TX 78712, USA.

children's fear. Scholars are concerned about horrifying school shooting news, noting that news portrayals of shootings are often too sensational with explicit images (Kellner, 2008). Especially, news coverage that involves violence can frighten children (Wilson et al., 2005), and such news can be harmful to children's cognitive performance and emotional state (Buijzen et al., 2007; Poutvaara & Ropponen, 2018). Despite the argument that children experience increased anxiety and stress when school shootings occur (Sarsour, 2018), what has not been fully explored is children's exposure to school shooting news coverage and their cognitive and affective responses to such news.

To address this, this project conducted a parental survey on how children get exposed and react to school shooting news across different media. While talking to children would be desirable to address this study's research questions, there are practical challenges in that children are categorized as a vulnerable group. By surveying parents (N = 266), this study provides a parental perspective of children's responses to news and safety perception and how children deal with the negative emotions.[1]

Theoretically, this study employs Piaget's (1966) four developmental stages of children to define the scope of the sample and discuss the different reactions to the news depending on developmental stage. By excluding parents who only have a child younger than 2, this study considers three developmental stages of children and compares each group's reactions to the news. Furthermore, this study applies cultivation theory to investigate how children's exposure to such news can affect their safety perception. Additionally, this study explains the role of emotion in the cultivation effect.

Because most studies on fear-inducing news have focused on *televised* news stories, this study considers newspapers, television, the internet, and social media. Overall, this study will help identify ways to make news more approachable and less harmful to children. Methodologically, this study showcases an alternative way to deal with the difficulty of including children in studies with sensitive topics. The pros and cons of surveying parents are discussed.

Literature review

Children's emotional reaction to frightening news

Fright is an immediate reaction that involves anxiety, distress, and increased physiological arousal that is often evoked by certain types of media exposure

[1]Given that the United Nations has defined a child as every human below 18 years (OHCHR, n.d.), parents with children from 2 to 17 years old were targeted. Parents with children younger than 2 were excluded because it is unlikely for children of that age to watch/understand news stories.

(Cantor, 2002). Scholarly interest in media-induced fear and its effect emerged with the increase of graphic media depictions of violence and horror, as this content increased public concern about children's stress reaction to them (Cantor & Riddle, 2014).

A substantial amount of news is related to crimes or danger, and it often presents vivid and gruesome images, which can arouse intense fears in children (Valkenburg, 2004). After the 9/11 terrorist attacks and Iraq war, concern over children's vulnerability to news violence has risen and drawn greater scholarly attention (Walma Van Der Molen, 2004). Although children may not be an active news audience, parents reported their children have been frightened or upset by televised news of killings, wars, and natural disasters (Cantor & Nathanson, 1996). Cantor and Nathanson explained that news of violence might not show the incident's goriest images, but children may be frightened by images of physical remains or people who lost their loved ones. Riddle et al. (2012) also noted that children are vulnerable to disturbing news content, primarily when news events occurred in proximity, and such experience can remain in children's memory.

Studies also examined children's reaction after a specific incident, such as kidnapping (Wilson et al., 2005), Boston Marathon Bombing (Comer et al., 2016), and terrorist incidents (Pfefferbaum et al., 2018). An elementary school classroom survey showed that children's exposure to news of a violent event (i.e., assassination) is positively associated with their responses of fear, anger, sadness, and worry (Buijzen et al., 2007). A parental survey confirmed that children who watched news coverage about a kidnapping experienced fright-related feelings, and heavy viewers of television news were more likely to show these feelings (Wilson et al., 2005).

Building on previous studies, this study focuses on children's responses to news coverage about school shootings. Given that school shootings are highly relevant to children's lives as they happen at a familiar place where they are physically and emotionally close, it stands to reason that:

H1: Children's exposure to news coverage of school shootings is positively related to their frightened reactions.

Noticeably, today's news media show more graphic pictures of crime and dangers (Fahmy et al., 2014), and the news extensively covers catastrophic events (Rees et al., 2019). However, few studies have studied violent news effects in an emerging media context, and we have a limited understanding of children's response to news through the internet or social media (Comer et al., 2016). Although limited, several attempts were made to compare different media effects on *children*. For instance, parents reported that children's exposure to online images of the 9/11 terrorist attack aroused a greater

degree of posttraumatic symptoms than TV or print (Saylor et al., 2003). Saylor et al. explained that images on the internet can be more detailed, and children can easily observe how others react to the incident. However, a study on the 1995 Oklahoma City bombing had an opposing finding: Print media had a stronger relationship to children's posttraumatic stress reactions than TV (Pfefferbaum et al., 2003). They explained that exposure to print media could be more intentional, and children who are already emotionally aroused may be more drawn to print media. While exposure to news across different platforms can be a critical factor contributing to children's frightened reactions, it is unclear which media platforms are more strongly associated with children's reactions.

RQ1: When children are exposed to news coverage of school shootings, do different news platforms (newspaper, television, internet, and social media) induce different degrees of frightened reactions?

Emotions and developmental stages

Children in the different developmental stages have different cognitive levels, which affects how they comprehend and interpret media content (Cantor & Sparks, 1984). Studies have probed age-related differences in media effects and revealed that the intensity of news portrayals that elicit children's fear seems to depend on the child's age (Kruuse & Kalmus, 2016; Smith & Wilson, 2000; Valkenburg et al., 2000).

To address age-related differences, Piaget's (1966) theory of cognitive development provides a useful framework for understanding children's cognitive abilities (McLeod, 2018, June 06). Piaget identified four stages of development. From birth to age 2, children go through the sensorimotor stage, where they construct a mental representation of the object. From ages 2 to 7, children pass through the preoperational stage, in which they start to use symbols, language, memory, and imagination. From 7 to 11, children are in the concrete operational stage, which is a critical turning point in children's cognitive ability because they can think logically, systematically, and operationally. Lastly, children age 11 years and older are in the formal operational stage, and they can think about abstracts concepts and ideas.

Consistent with Piaget's assumption that younger children have limited cognitive ability to comprehend the world, children in early childhood cannot distinguish reality from fantasy. Around the age of 7, they start to see the differences between the two (Valkenburg, 2004). This implies that children younger than 7 years of age can be more afraid of animals or supernatural things. In contrast, older children are more fearful about personal injury or death (Cantor, 2008). Thus, when older children encounter violent news, they are generally more likely to get frightened than

a younger group of children (Walma Van Der Molen & Bushman, 2008). When it comes to news stories on school shootings, these stories are directly linked to how people receive physical threats or harms from others, and they often present vivid images of perpetrators, dangers, and victims. Therefore, children in later developmental stages who are better at distinguishing reality from fantasy may perceive physical danger as frightening because they can apply what they have seen to their personal lives (Lemish et al., 2019). This study predicts:

H2: Older children are more likely to get frightened by news coverage of school shootings than younger children.

Cognitive development and coping strategies

Children are not always passive victims of media-induced fear (Kruuse & Kalmus, 2016). Instead, children can learn to deal with media-induced fears (Valkenburg, 2004) and implement different strategies to cope with their emotions. Particularly, children's cognitive development is an essential predictor of different coping strategies because developmental differences are associated with their information-processing capacities (Cantor, 2002). Children's coping strategies can either be cognitive or non-cognitive. Cognitive strategies are mental re-conceptualizations of the fear-inducing stimuli, such as to stress how unreal the stimuli are and talk with others to minimize the threats (Lin, 2017). Non-cognitive strategies are automatic and behavioral, such as avoiding unpleasant stimuli by walking out of the situation (Cantor, 2002). Studies indicated that younger children find non-cognitive strategies more effective because such strategies mainly work by distracting oneself, and it is useful for young children who find it difficult to process more than one activity at once (Cantor, 2006). In contrast, older children have enough cognitive ability to use more complicated strategies (Cantor, 2002).

H3: When children are exposed to news coverage of school shootings, (a) younger children are more likely to use *non-cognitive* coping strategies and (b) older children are more likely to use *cognitive* coping strategies.

Parental mediation

Parental mediation can modify media effects on children by helping them avoid negative consequences of media, reinforce the positive impact of media, and improve their coping strategies (Buijzen et al., 2007; Collier et al., 2016; Nathanson, 2001). Parental mediation has three types: *restrictive mediation*, where parents limit children's media consumption; *active mediation*, where parents discuss media content with their children to

promote critical thinking and encourage or discourage them from adopting specific ideas and behaviors from media; and *co-viewing*, where parents are present while children are using media (Nathanson, 2001). Although many studies tested how each type of mediation influenced children, the findings are inconsistent; different types of parental mediation can enhance or decrease children's emotional responses (Buijzen et al., 2007; Paavonen et al., 2009). For instance, restrictive mediation can limit media exposure, but it can also amplify the negative consequences of media effects (Nathanson, 2002). This might be due to the general communication style of parents who impose restrictions. Parents with restrictive communication styles tend to not actively talk about their children's feelings after media exposure, which may result in their child remaining worried or fearful (Buijzen et al., 2007). Active mediation could alleviate the relationship between media exposure and negative arousal emotions (Chen & Shi, 2018). However, in an experiment, instructing preschoolers to think about the movie in a certain way (i.e., active mediation) was not effective in reducing children's negative emotions (Cantor & Wilson, 1984). By co-viewing, parents can be aware of their child's media use and their media-related fear; however, a parental survey showed that co-viewing was positively associated with children's TV-related fears (Paavonen et al., 2009).

Hence, this study examines how parental mediation works when children are exposed to frightening news through various media platforms. Since the effect of different types of parental mediation is not the central focus of this study, this study examines how parental mediation, in general, is associated with children's frightened reactions.

RQ2: How is parental mediation related to children's frightened reactions?

Children's social reality

Based on cultivation theory, this study explores how children's exposure to news coverage of school shootings is linked to their perceived safety. Cultivation theory proposes that people's perceptions are shaped by what they see on media (Gerbner, 1998). It does not argue that media exposure is an overpowering cause of its effect on people. Instead, cultivation theorists consider media exposure as one factor that explains people's attitudes about the world (Morgan et al., 2017). Mean world syndrome, in which people who spend more time with media are more likely to perceive the world as a dangerous place, is an example of cultivation (Gerbner, 1998).

Researchers tested this presumption in different settings with various methods, showing the association between media exposure and a higher estimate of the prevalence of crime and violence (Gerbner et al., 1980; Romer et al., 2003). However, studies insisted that socio-demographic

variables and media use should be controlled when testing cultivation theory because those who spend more time watching TV are not the same as those who watch less in many ways (Morgan et al., 2015). For instance, Jockel and Fruh (2016) showed that the cultivation effect of exposure to crime on TV is weak and not significant when socio-demographic variables, such as gender and education, are controlled. While a lot remains unknown about the role of *online* news about traumatic incidents (Comer et al., 2016), Roche et al. (2016) showed that TV news exposure is related to anxiety about crime, but online news exposure is not. They argued that online users have a greater agency, limiting the impact of messages to its viewers.

Taking all these together, this study considers four different types of news platforms (newspaper, TV, online, and social media) and investigates how children's exposure to news coverage of school shootings affects their safety perception after controlling for the key demographic variables.

H4: Children who have been exposed to news coverage of school shootings may perceive their (a) school and (b) society as not a safe place.

Bridging affective and cognitive reactions

The preceding hypotheses dealt with the emotional (H1) and cognitive (H4) reactions of children to news reports about school shootings. However, these two responses may interact with each other, because emotions have an essential role in guiding cognitions within media effect processes (Izard, 1992; Nabi, 2009). Cultivation studies have paid noticeably little attention to the issues of emotion, and the role of people's emotions in cultivating their beliefs is unclear (Nabi, 2009). To understand the mechanism through which news exposure shapes children's perceptions, this study investigates how a psychological response to the media can translate into perceiving the world as unsafe. Specifically, this study investigates the role of frightened reactions in mediating the relationship between media exposure and perceived safety.

RQ3: Does children's frightened reaction to the news mediate the relationship between exposure to news coverage of school shootings and perceived safety?

Method

An online survey was created and administered through the Qualtrics. Participants were invited through the link posted on the Amazon Mechanical Turk (MTurk) website. The recruitment of MTurk workers was managed by the CloudResearch, which blocks MTurk workers from using tools to hide their location, run checks to identify VPN usage, or

create unique anonymous IDs for respondents (CloudResearch, n.d.). Although some people are concerned about selection bias and subject inattentiveness of MTurk samples, MTurk workers produce sufficient quality data when compared to other subject pools (Berinsky et al., 2012).

On average, the survey took 10.48 minutes, and participants received $1.00 for completing this survey. The proposed study received the approval of the Institutional Review Board on December 20, 2019, and the data were collected on February 4, 2020.

Sample

Participants in the US who are 18 or older and have at least one child ages 2 to 17 were recruited. At the beginning of the study, participants were informed about the study and told that all of their answers should be given by only one child (Wilson et al., 2005). If they have more than one child, they were asked to select one of their children whose birthday is closest to the date they are taking the survey. Parents were targeted to address practical concerns regarding surveying children. As frightening media content can result in lifelong effects (Harrison & Cantor, 1999), children's direct involvement with a study on school shooting coverage may carry some risks that outweigh its potential benefits. Additionally, children under 18 are legally protected, and their parents must consent for them, which raises the complexity of research (Lenhart, 2013).

As an alternative, parents are chosen because they are easier to approach, and they can better understand the survey and report children's feelings, especially for children reluctant or not mature enough to express their thoughts (Wilson et al., 2005). In earlier studies, parental reports presented valid and reliable results, showing that parents could precisely describe their child's fright experiences (e.g., Cantor et al., 1993; Cantor & Nathanson, 1996; Smith & Moyer-Guse, 2006). Nevertheless, this study acknowledges its limitations and does not claim that a single survey of parents can provide the whole picture of children's media use. It has the potential for underreporting since parents cannot entirely understand what their children feel and think (Muris et al., 2000). Also, there is a social desirability issue of parents trying to provide answers that make others consider them good parents (Van den Bulck & Van den Bergh, 2000).

Despite such limitations, parents can provide useful data. When researchers compared parent and child reports, their answers are correlated with criterion measures, and this showed both reports are equally valid (Beyens & Valkenburg, 2019). Still, the results should be interpreted with caution. To enhance the accuracy of the response, parents were asked if they would be able to have a conversation with their children while completing the survey. They

were informed that their answer does not determine their eligibility for participating in this study. Overall, 85% of the participants answered, "yes."

A total of 305 people completed the survey. Answers with the duplicate IP address (n = 4), people who failed to answer both attention check questions (n = 18), and those who reported their age under 18 or did not report their age (n = 17) were dropped from the analysis. The final sample size was 266. Respondents' age ranged from 21 to 69 years (M = 34.71, SD = 7.93); 63.2% of them were male. 53.8% were White, and 36.8% were Black or African American. 34.3% of the respondents had a child of ages between 2 to 6 (n = 92), 33.5% for 7 to 11 (n = 89), and 31.9% for 12 to 17 (n = 85). Children's ages ranged from 2 to 17 (M = 8.9, SD = 4.58), and 66.5% of them were male; 52.6% of children were White, and 35% were Black or African American.

Independent variables

Exposure to news coverage about school shootings

Participants reported the degree to which their children encountered news coverage about school shootings on (a) newspaper, (b) TV, (c) internet, (d) social media within the two weeks following any recent school shooting incidents. Answers were recorded on a 7-point scale, from 1 = never to 7 = very frequently. For RQ1, each variable was kept separately (newspaper: M = 3.99, SD = 2.24; TV: M = 4.75, SD = 1.88; Internet: M = 4.73, SD = 1.99; social media: M = 4.66, SD = 2.10) while all four items were averaged to test the remaining hypotheses (M = 4.54, SD = 1.76, *Cronbach's* α = .88).

Parental mediation

Following Nikken and Schols (2015), the degree to which participants were involved in such activities was measured: telling the child which media are allowed; telling the child to stop when he or she is using a device too long; complimenting the child when he or she makes good use of a media device; telling the child how to use media properly; telling the child how to be safe on a particular media; telling the child what is "good" in media production; having a conversation with the child about nice or interesting media content; using the media together either because the child wants to; or because the parent wants to; using a media device together with the child for fun or entertainment; suggesting the child watch or read an interesting media content.[2] All answers are recorded on a 7-point Likert scale (1 = never to 7 = always) and averaged (M = 5.20, SD = 1.07, *Cronbach's* α = .88).

[2]From original measurement, this study excluded: "allowed the child to read a specific newspaper or use a specific app, television channel, or website which the child picked" because of its low factor loadings.

Dependent variables

Frightened reaction

Adapted from Lin (2017) and Lynch and Martins (2015), participants answered the degree to which their child was frightened after encountering a school shooting news: does not want to recall the experience of encountering a school shooting news; was too scared to sleep after encountering a school shooting news; was afraid to go to school after encountering a school shooting news; was afraid that school shootings can happen to him/her; was afraid that school shootings can happen to somebody that he/she knows. Answers were recorded on a 7-point scale, from 1 = completely disagree to 7 = completely agree. If a child never encountered the school shooting news, participants answered "not applicable." Answers were averaged (M = 4.52, SD = 1.75, *Cronbach's* α = .91).

Safety perception

Following Wilson et al. (2005), children's perceived safety of *the school* was measured by following four questions: Because these school shooting stories have been in the news, how concerned has your child been … about a school shooting occurring in the near area; about the children directly involved in the school shooting stories; that school shootings might victimize him/her; about a stranger with guns coming into the school? Answers were recorded on a 7-point scale, from 1 = Not at all concerned to 7 = Very concerned. They were averaged (M = 4.63, SD = 1.67, *Cronbach's* α = .89).

The perceived safety of *society* was measured by following Stretesky and Hogan (2001). On a 7-point scale (1 = Not at all concerned to 7 = Very concerned), participants were asked: How concerned has your child been about … walking alone after dark; being approached by a stranger with a gun; waiting for public transportation alone after dark; walking past a man whom they don't know while alone after dark? Answers were averaged (M = 4.50, SD = 1.67, *Cronbach's* α = .88). To address RQ3, perceptions of *school* and *society* are averaged and combined into perceived safety of the world (M = 4.56, SD = 1.58, *Cronbach's* α = .93).

Coping strategies

Using Lin (2017)'s scale, participants reported the degree to which their child showed following five *cognitive* behaviors while or after encountering the news stories about school shootings: constantly monitored his/her surroundings for potential dangers; looked for the information about what she/he should do when school shooting occurs; kept talking to him/herself to remind him/herself of the context; distracted him/herself by thinking of other things; said to her/himself "this isn't real" (M = 4.34, SD = 1.88, *Cronbach's* α = .90). *Non-cognitive* strategies are measured by

asking the degree to which their child swore; screamed or yelled; turned his/her head; blocked his/her ears; closed his/her eyes. Answers were averaged (M = 3.97, SD = 2.03, *Cronbach's* α = .94).

Control variables

This study controlled the effect of child and parents' gender (1 = male), child's age (dummy coded with middle-age children; ages 8 to 11 as a reference category), and child's media use. A child's media use is controlled to ensure that the results show the specific effects of exposure to news coverage of school shootings, not of general media use (Vossen et al., 2017).

Media use

Following Rideout (2016), participants reported how often their child does one of the fourteen media activities, such as using a computer for homework, playing computer games, using social media, etc. Answers were recorded on a 7-point scale (1 = Never to 7 = Every day) and averaged (M = 4.98, SD = 1.05, *Cronbach's* α = .88).

Data analysis

Ordinary least square (OLS) regression analysis was conducted to test the relationships among exposure to the news and frightened reactions (H1), exposure to the news and safety perception (H4), different news platforms and frightened reactions (RQ1), and parental mediation and frightened reactions (RQ2). One-way analysis of variance (ANOVA) tested H2 (age groups and frighten reactions) and H3 (age groups and coping strategies). Hayes's PROCESS Model 4 was used to test an indirect effect addressed in RQ3 (Hayes, 2018). PROCESS produces a confidence interval for the index, and if a confidence interval does not include zero, it indicates that there is a statistically significant indirect effect at p <.05.

Results

H1 assumed that children's exposure to news coverage of school shootings is positively related to their frightened reactions. As seen from Table 1, exposure to the news produced a moderate significant relationship with children's frightened reactions [β = .56, p <.001]. H1 was supported.

H2 predicted that older children (ages 12 to 17) are more likely to get frightened by news coverage of school shootings than the middle (ages 7 to 11) and the youngest (ages 2 to 6) age groups. The ANOVA showed a main effect of age on frightened reaction, $F(2, 172) = 3.86$, $\eta^2 = .04$, $p = .02$. A Scheffe post-hoc correction test demonstrated that children in the youngest age group (M = 5.05,

Table 1. Ordinary least regression predicting frightened reaction and safety perception.

	Standardized co-efficient (β)	
	Model 1	Model 2
DV: **Frightened reaction** (H1)		
Child's gender (1 = male)	.03	.01
Child's age	−.18*	−.16*
Child's media use	.50***	.16*
Child's exposure to news coverage of school shootings		.56***
F	15.47***	27.28***
Adjusted R^2	.27	.46
DV: **Perception that one's *school* is not safe** (H4a)		
Child's gender (1 = male)	−.02	−.05
Child's age	.01	−.02
Child's media use	.64***	.36***
Child's exposure to news coverage of school shootings		.43***
F	38.74***	46.48***
Adjusted R^2	.39	.49
DV: **Perception that a *society* is not safe** (H4b)		
Child's gender	−.04	−.07
Child's age	−.02	−.05
Child's media use	.66***	.39***
Child's exposure to news coverage of school shootings		.41***
F	42.65***	49.59***
Adjusted R^2	.42	.51
DV: **Frightened reaction** (RQ1)		
Child's gender	.03	.00
Child's age	−.18*	−.16*
Child's media use	.50***	.16
Exposure through newspaper		.27**
Exposure through TV		.07
Exposure through Internet		.18
Exposure through social media		.16
F	15.47***	17.07***
Adjusted R^2	.27	.45
DV: **Frightened reaction** (RQ2)		
Parent's gender (1 = male)	−.03	−.03
Child's gender	.03	.03
Child's age	−.18*	−.17*
Child's media use	.50***	.47***
Parental mediation		.05
F	11.92***	9.94***
Adjusted R^2	.26	.26

N = 266. DV = Dependent Variable. *p <.05. **p <.01. ***p <.001.

SE = .23) are more likely to get frightened after being exposed to the news than the middle age group (M = 4.28, *SE* = .22, p = .06). The mean for the youngest group was not significantly different than the mean for the oldest group, although it was trending toward significance (M = 4.27, *SE* = .22, p = .054). No significant difference was found between the middle and oldest group (p = 1.00). H2 was not supported.

H3a posited that younger children are more likely to use non-cognitive (behavior) coping strategies than older children. Using an ANOVA, the result presented a main effect of age on non-cognitive coping strategies, $F(2, 188) = 12.22$, $\eta^2 = .12$, p <.001. The youngest group of children was more

likely to use non-cognitive strategies (M = 4.93, SE = .24), compared to the middle age group (M = 3.53, SE = .24, p <.001) and the oldest age group (M = 3.40, SE = .24, p <.001). However, the mean for the middle age group and the oldest age group were not significantly different (p = .95). H3a was partially supported.

H3b predicted that older children are more likely to use cognitive coping strategies than younger children. An ANOVA presented a main effect of age on cognitive coping strategies, $F(2, 193) = 7.16$, $\eta^2 = .07$, p <.001. The youngest children were more likely to use cognitive coping strategies (M = 5.04, SE = .23) than the middle age group (M = 3.95, SE = .22, p = .003) and the oldest age group (M = 4.05, SE = .22, p = .009). However, the middle and the oldest groups did not show a significant difference (p = .95). H3b was not supported.

H4 assumed that children who have been exposed to news coverage of school shootings would perceive their (a) school and (b) society as not a safe place. As shown in Table 1, exposure to the news was a moderate significant predictor of children's perception that their school is not safe [β = 0.43, p <.001]. For the perception of society, a regression analysis showed a moderate significant relationship between children's exposure to the news and their perceived safety of society [β = 0.41, p <.001]. H4a and b were supported.

RQ1 asked if different news platforms induce a different degree of frightened reactions. As seen from Table 1, exposure to the news through newspaper showed a significant relationship with frightened reaction [β = .27, p = .003], while TV [β = .07, p = .42], Internet [β = .18, p = .12] and social media [β = .16, p = .14] did not produce significant correlations.

RQ2 asked how parental mediation would be associated with children's frightened reactions. Unlike other hypotheses and research questions, this research question included a parent's gender as a control variable. As shown in Table 1, mediation did not produce significant correlations [β = .05, p = .58].

RQ3 addressed the mediating effect of children's frightened reactions on the relationship between exposure to news and perception of the world. A simple mediation analysis showed the path from the exposure to safety perception was positive and significant (B = .26, SE = .06, p <.001), indicating that the more children are exposed to the news coverage of school shootings, the more they are likely to feel unsafe. The direct effect of children's reaction on safety perception was also positive and significant (B = .46, SE = .06, p <.001), explaining that children who are more frightened to news are more likely to perceive the world as dangerous. Confidence intervals (CI) are 95% biased-corrected, and unstandardized indirect effects were computed for each of the 5,000 bootstrapped samples. The indirect effect of exposure to safety perception was found to be statistically significant [Effect = .32, 95% CI: (.22, .43)]. Accordingly,

children's frightened reactions to the news mediate the effect of exposure on perceived safety.

Discussion

Based on cultivation theory and theory of cognitive development, this study conducted a parental survey to examine children's cognitive and affective responses to news coverage of school shootings. According to parents' perspective, news can largely influence children's emotional, cognitive responses and perceptions about the world. Children's exposure to the news is associated with their frightened reaction and perception that the world is dangerous.

Notably, this study found that according to parents' perspective, children's frightened reactions to the news explain the process of how the news exposure affects their perceived safety. The highlight of this finding is that it both shows the occurrence of the cultivation effect and *why* it occurs. Fright could be the psychological state that leads children to perceive their school and society as dangerous places after watching news coverage about school shootings. Theoretically, this finding directly links emotion to cultivation theory, which has been remarkably silent on emotion-related issues (Nabi, 2009). Pragmatically, it highlights why researchers need to pay attention to how school shootings are handled and portrayed in the news. As the news-induced frightened reaction is one factor that makes children more anxious about their safety, researchers should pay more attention to ensure that the news stories are reported in a way that causes less emotional disturbance in children. Although this study did not specifically identify which news elements made children most fearful, several of them could influence children and remain in their memory. For instance, portrayals of people with a weapon, the depiction of victims' families, or news anchors' somber tone may elicit fright in children. Future studies could examine how different news elements affect children's moods or beliefs. Based on such studies, journalists could promote or avoid sending out specific scenes or interviews, reducing children's fright reactions to the news.

Another interesting finding was that when looking at the relationship between the exposure to different news platforms and frightened reaction, exposure to the newspaper is related to a greater frightened reaction. In contrast, the relationship between other platforms (TV, internet, and social media) and a child's frightened reactions was not statistically significant. This finding supports studies that argued people may react differently to news depending on which medium they were exposed to (Cheng et al., 2016). However, the result is surprising: Print was the only medium associated with children's frightened reactions. One tentative explanation would be that print demands more mental effort, leading people to understand the content better than from audio-visual media, such as TV or online news

(Salomon, 1984; Sundar, 2000). Although this study did not assess how well children understood the news, studies that examined how different media affect people's processing of news hint that children might have better understood school shootings through the newspaper (Eveland & Dunwoody, 2001; Santana et al., 2013). Exposure through TV, the internet, and social media might not have led them to sufficiently understand the incident to the extent that they get frightened of school shootings. Future studies could test these presumptions in experimental settings and look more into how different media platforms influence children's emotional reactions to violent news.

Furthermore, the parental survey showed that parental mediation had no significant relationship with children's frightened reactions. This finding supports studies that argued parental mediation does not always magically solve the issues of fear-inducing media (Kruuse & Kalmus, 2016). Nevertheless, this does not imply that the role of parents is unimportant. Rather, there may be conditions necessary to make the parental mediation meaningful. For instance, Kruuse and Kalmus (2016) pointed out that parental mediation may not be effective when adults intervene in children's media consumption from adults' perspectives. Instead, they suggested a child-centered approach, which recommends parents to have an active conversation with children on media-related topics so that they can learn how their children understand media content and provide emotional support when necessary (Kruuse & Kalmus, 2016). As such, future studies need to examine the mechanisms through which parental mediation can affect children's emotional response to the news (Buijzen et al., 2007) and provide specific directions for caregivers to guide children's effective news consumption.

Finally, from parents' perspective, the youngest children were more likely to get frightened by the news of school shootings, and they were most likely to use both non-cognitive and cognitive coping strategies to deal with their frightened reactions. These align with studies that demonstrated that older children showed less intense emotional responses, while the effect of age was not strong (Buijzen et al., 2007). One possible explanation for this is the effect of desensitization. Studies showed that repeated exposure to media violence could desensitize children and reduce their fear or anxiety reactions to violence (Bushman & Anderson, 2009). Given that children today are growing up with a heightened fear of school shootings (Sarsour, 2018), older children would have had more opportunities to read or watch such news or have more indirect/direct experiences of school shootings. Although the finding cannot be generalized, it is possible that children might have been very shocked at first, but their initial shock could wear off as they watched the news more as they grew up. These results emphasize that parents and media literacy educators should consider children's age and cognitive developmental stages when encountered children's

frightened reactions to the news. This would allow them to be aware of how children react to the news and help them accordingly.

Limitations

This study has some limitations that future research can improve upon. First, convenience sampling and the small sample size can limit the findings' generalizability. For instance, fathers participated more in this survey than mothers. It is possible that fathers' opinions were magnified over those of mothers. Future studies could use a representative sample that reflects the overall characteristics of children ages 2 to 17 and their parents to achieve greater generalizability. Additionally, researchers can study children in a specific community that may be more vulnerable to tragic events.

Second, the results are based on surveys from parents. Thus, the findings may not perfectly represent children's actual media practices and reactions to the news (Muris et al., 2001). Future studies can survey both parent and child or conduct observational studies to improve the validity and accuracy of measuring children's reactions (Storm-Mathisen, 2016).

Lastly, this study does not argue that the news solely contributed to children's reactions. For instance, children's experiences or neighborhoods that they live in could also profoundly affect the way they view and react to the news. Thus, the news alone might not be the sole factor that drove children to react in a certain way. Qualitative interviews with children may be advantageous for a more in-depth explanation of how children process and understand the violent news.

Conclusion

The popular press and research communities have consistently pointed out that news reports about school shootings can disturb children (e.g., Dahmen, 2018; Flannery, 2018). However, no empirical study explicitly examined children's exposure and reactions to news coverage about school shootings. Therefore, this study offers insights into how children affectively and cognitively react to the news, based on parents' perspectives.

Theoretically, this study contributes to the cultivation literature by considering different news platforms and the role of emotions. Although this study showed that the impact of different platforms on children's frightened reaction is small, it suggests that the theory can be more widely applied to compare different media within a changing media environment. Additionally, as cultivation studies have focused less on emotions (Nabi, 2009), this study fills the gap in the literature by stressing that emotional reaction to media can explain the relationship between news exposure and perceived safety.

Methodologically, this study used a parental survey which showcases an alternative that researchers can take when they cannot directly contact or involve children in a study. Despite its shortcomings, parental reports can especially serve as a metric for providing parents' unique viewpoints and observations on their children's behaviors and activities (American Academy of Pediatrics, 2015). Instead of regarding parental reports as an incomplete approximation of children's responses, they can be understood as a tool that enables a richer understanding of children's media practices and media-induced reactions.

Furthermore, this study alerts journalists about the potential dangers of the way they cover school shootings. There may be a social benefit to people for being scared by gruesome media coverage; however, its rhetorical power can be traumatic (Hariman & Lucaites, 2003). Notably, a school shooting is a tragic event that gets disproportionally great media attention (Silva & Capellan, 2019). It takes place in a physically and emotionally intimate space where children spend most of their day. Therefore, news producers should take thorough precautions against potential harm to children. To illustrate, avoiding things that can trigger children's negative emotions, such as excessive reporting of perpetrators or presenting too graphic portrayals of an incident, may be helpful. Also, journalists can include more explicit trigger warnings before the coverage and focus more on solutions, such as showing how people are trying to change this or the resistance and resilience of people. Such extra precautionary steps and different focuses will benefit children while still helping them stay informed.

Finally, this study calls on media literacy educators to seek media literacy training for parents and children. The results showed that parental mediation does not always help children. Nonetheless, this does not mean that children should be left unattended when watching the news. If children are constantly exposed to negative news, experience emotional disturbances, and live with distrust or anxiety about the world, it can trap them in a vicious cycle of negativity. Thus, this study urges educators to examine how children can benefit from parental mediation. For instance, parental mediation should focus on both prevention and reassurance (Walma Van Der Molen, 2004). Parents can help children learn which news they should attend to, how to be aware of potential consequences of watching violent news, how to process/deal with traumatic news, and whom they should find to talk about stressful news events. By doing so, children will be more resilient and critical of the stressful news.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributor

Gyo Hyun Koo (M.A., Indiana University Bloomington, 2019) is a doctoral student in the School of Journalism at The University of Texas at Austin. Her research interests include people's selection and perception of the news and political information and how the media environment affects people's political beliefs and attitudes.

ORCID

Gyo Hyun Koo http://orcid.org/0000-0002-3188-4588

References

American Academy of Pediatrics. (2015). *Why parent report?* https://agesandstages.com/wp-content/uploads/2015/02/Why-Parent-Report_12.5.14.pdf

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon.com's mechanical Turk. *Political Analysis*, *20*(3), 351–368. https://doi.org/10.1093/pan/mpr057

Beyens, I., & Valkenburg, P. M. (2019). Parental media mediation in adolescence: A comparative study of parent and adolescent reports. *Journal of Broadcasting & Electronic Media*, *63*(4), 716–736. https://doi.org/10.1080/08838151.2019.1680071

Buijzen, M., Walma Van Der Molen, J. H., & Sondij, P. (2007). Parental mediation of children's emotional responses to a violent news event. *Communication Research*, *34*(2), 212–230. https://doi.org/10.1177/0093650206298070

Bushman, B. J., & Anderson, C. A. (2009). Comfortably numb: Desensitizing effects of violent media on helping others. *Psychological Science*, *20*(3), 273–277. https://doi.org/10.1111/j.1467-9280.2009.02287.x

Cantor, J., Mares, M. J., & Oliver, M. B. (1993). Parents' and children's emotional reactions to TV coverage of the Gulf War. In B. S. Greenberg & W. Gantz (Eds.), *Desert storm and the mass media* (pp. 325–340). Hampton Press.

Cantor, J., & Nathanson, A. (1996). Children's fright reactions to television and films. *Journal of Communication*, *46*(4), 139–152. https://doi.org/10.1111/j.1460-2466.1996.tb01510.x

Cantor, J., & Riddle, K. (2014). Media and fear in children and adolescents. In D. A. Gentile (Ed.), *media violence and children: A complete guide for parents and professionals* (pp. 179–207). Praeger.

Cantor, J., & Sparks, G. G. (1984). Children's fear responses to mass media: Testing some Piagetian predictions. *Journal of Communication*, *34*(2), 90–103. https://doi.org/10.1111/j.1460-2466.1984.tb02162.x

Cantor, J., & Wilson, B. J. (1984). Modifying fear responses to mass media in preschool and elementary school children. *Journal of Broadcasting*, *28*(4), 431–443. https://doi.org/10.1080/08838158409386552

Cantor, J. (2002). Fear reactions and the mass media. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 287–307). Lawrence Erlbaum.

Cantor, J. (2008). Fright reactions to mass media. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (pp. 213–245). Lawrence Erlbaum.

Cantor, J. (2006). Why horror doesn't die: The enduring and paradoxical effects of frightening entertainment. In J. Bryant & P. Vorderer (Eds.), *Psychology of entertainment* (pp. 315–327). Lawrence Erlbaum.

Chen, L., & Shi, J. (2018). Reducing harm from media: A meta-analysis of parental mediation. *Journalism & Mass Communication Quarterly*, *96*(1), 173–193. https://doi.org/10.1177/1077699018754908

Cheng, J. W., Mitomo, H., Otsuka, T., & Jeon, S. Y. (2016). Cultivation effects of mass and social media on perceptions and behavioural intentions in post-disaster recovery - The case of the 2011 great East Japan Earthquake. *Telematics and Informatics*, *33*(3), 753–772. https://doi.org/10.1016/j.tele.2015.12.001

CloudResearch. (n.d.). https://www.cloudresearch.com/products/turkprime-mturk-toolkit/

Collier, K. M., Coyne, S. M., Rasmussen, E. E., Hawkins, A. J., Padilla-Walker, L. M., Erickson, S. E., & Memmott-Elison, M. K. (2016). Does parental mediation of media influence child outcomes? A meta-analysis on media time, aggression, substance use, and sexual behavior. *Developmental Psychology*, *52*(5), 798–812. https://doi.org/10.1037/dev0000108

Comer, J. S., Deserisy, M., & Green, J. G. (2016). Caregiver-reports of internet exposure and posttraumatic stress among Boston-area youth following the 2013 marathon bombing. *Evidence-Based Practice in Child and Adolescent Mental Health*, *1*(2–3), 86–102. https://doi.org/10.1080/23794925.2016.1203737

Dahmen, N. S. (2018, February 22). *When the media cover mass shootings, would depicting the carnage make a difference?* The Conversation. https://theconversation.com/when-the-media-cover-mass-shootings-would-depicting-the-carnage-make-a-difference-92140

Diliberti, M., Jackson, M., Correa, S., and Padgett, Z. (2019). Crime, violence, discipline, and safety in U.S. public schools: Findings From the School Survey on Crime and Safety: 2017–18 (NCES 2019-061). U.S. Department of Education.

Eveland, W. P., & Dunwoody, S. (2001). User control and structural isomorphism or disorientation and cognitive load? *Communication Research*, *28*(1), 48–78. https://doi.org/10.1177/009365001028001002

Fahmy, S., Bock, M. A., & Wanta, W. (2014). *Visual communication theory and research: A mass communication perspective*. Palgrave Macmillan.

Flannery, D. J. (2018, February 16). *Here's how witnessing violence harms children's mental health*. The Conversation.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). The "mainstreaming" of America: Violence profile no. 11. *Journal of Communication*, *30*(3), 10–29. https://doi.org/10.1111/j.1460-2466.1980.tb01987.x

Gerbner, G. (1998). Cultivation analysis: An overview. *Mass Communication and Society*, *1*(3–4), 175–194. https://doi.org/10.1080/15205436.1998.9677855

Graf, N. (2018, April 18). *Majority of teens worry about school shootings, and so do most parents*. Pew Research Center.

Hariman, R., & Lucaites, J. L. (2003). Public identity and collective memory in U.S. iconic photography: The image of "accidental Napalm." *Critical Studies in Media Communication*, *20*(1), 35–66. https://doi.org/10.1080/0739318032000067074

Harrison, K., & Cantor, J. (1999). Tales from the screen: Enduring fright reactions to scary media. *Media Psychology*, *1*(2), 97–116. https://doi.org/10.1207/s1532785xmep0102_1

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Publications.

Izard, C. E. (1992). Basic emotions, relations among emotions, and emotion-cognition relations. *Psychological Review*, *99*(3), 561–565. https://doi.org/10.1037/0033-295X.99.3.561

Jockel, S., & Fruh, H. (2016). "The world ain't all sunshine": Investigating the relationship between mean world beliefs, conservatism and crime TV exposure. *Communications*, *41*(2), 195–217. https://doi.org/10.1515/commun-2016-0001

Kellner, D. (2008). Media spectacle and the "massacre at Virginia Tech." In B. Agger & T. W. Luke (Eds.), *There is a gunman on campus: Tragedy and terror at Virginia Tech* (pp. 29–54). Rowman & Littlefield Publishers, Inc.

Kruuse, K., & Kalmus, V. (2016). Supernatural creatures, accidents, and war. *Television & New Media*, *18*(3), 252–268. https://doi.org/10.1177/1527476416652692

Lemish, D., Holler, A., & Gotz, M. (2019). What is frightening in middle childhood? From Jaws to news. In M. Gotz, D. Lemish, & A. Hooler (Eds.), *Fear in front of the screen: Children's fears, nightmares, and thrills from TV* (pp. 61–80). Rowman & Littlefield Publishers.

Lenhart, A. (2013). *The challenges of conducting surveys of youth*. Pew Research Center.

Lin, J. T. (2017). Fear in virtual reality (VR): Fear elements, coping reactions, immediate and next-day fright responses toward a survival horror zombie virtual reality game. *Computers in Human Behavior*, *72*, 350–361. https://doi.org/10.1016/j.chb.2017.02.057

Lynch, T., & Martins, N. (2015). Nothing to fear? An analysis of college students' fear experiences with video games. *Journal of Broadcasting & Electronic Media*, *59*(2), 298–317. https://doi.org/10.1080/08838151.2015.1029128

Mazzei, P., & Jordan, M. (2019). "You can't put it behind you": School shootings leave long trail of trauma. New York Times.

McLeod, S. (2018, June 06). *Jean Piaget's theory of cognitive development*. Simply Psychology. https://www.simplypsychology.org/piaget.html

Morgan, M., Shanahan, J., & Signorielli, N.(2017). Cultivation theory: Idea, topical fields, and methodology. In P. Rössler, C. A. Hoffner, and L. Van Zoonen (Eds.), *The international encyclopedia of media effects* (Vol. 1, pp. 307–320). Malden, MA: Wiley-Blackwell. https://doi.org/10.1002/9781118783764.wbieme0039

Morgan, M., Shanahan, J., & Signorielli, N. (2015). Yesterday's new cultivation, tomorrow. *Mass Communication and Society*, *18*(5), 674–699. https://doi.org/10.1080/15205436.2015.1072725

Muris, P., Merckelbach, H., Gadet, B., & Moulaert, V. (2000). Fears, worries, and scary dreams in 4- to 12-year-old children: Their content, developmental pattern and origins. *Journal of Clinical Child Psychology*, *29*(1), 43–52. https://doi.org/10.1207/S15374424jccp2901_5

Muris, P., Merckelbach, H., Ollendick, T. H., King, N. J., & Bogie, N. (2001). Children's nighttime fears: Parent-child ratings of frequency, content, origins, coping behaviors and severity. *Behaviour Research and Therapy*, *39*(1), 13–28. https://doi.org/10.1016/S0005-7967(99)00155-2

Nabi, R. L. (2009). Emotion and media effects. In R. L. Nabi & M. B. Oliver (Eds.), *The SAGE handbook of media processes and effects* (pp. 209–221). SAGE Publications.

Nathanson, A. I. (2001). Mediation of children's television viewing: Working toward conceptual clarity and common understanding. *Annals of the International Communication Association*, *25*(1), 115–151. https://doi.org/10.1080/23808985.2001.11679002

Nathanson, A. I. (2002). The unintended effects of parental mediation of television on adolescents. *Media Psychology*, *4*(3), 207–230. https://doi.org/10.1207/S1532785XMEP0403_01

Nikken, P., & Schols, M. (2015). How and why parents guide the media use of young children. *Journal of Child and Family Studies*, *24*(11), 3423–3435. https://doi.org/10.1007/s10826-015-0144-4

OHCHR. (n.d.). *Convention on the rights of the child*. https://www.ohchr.org/en/professionalinterest/pages/crc.aspx

Paavonen, E. J., Roine, M., Pennonen, M., & Lahikainen, A. R. (2009). Do parental co-viewing and discussions mitigate TV-induced fears in young children? *Child: Care, Health and Development*, *35*(6), 773–780. https://doi.org/10.1111/j.1365-2214.2009.01009.x

Pfefferbaum, B., Seale, T. W., Brandt, E. N., Pfefferbaum, R. L., Doughty, D. E., & Rainwater, S. M. (2003). Media exposure in children one hundred miles from a terrorist bombing. *Annals of Clinical Psychiatry*, *15*(1), 1–8. https://doi.org/10.3109/10401230309085664

Pfefferbaum, B., Tucker, P., Pfefferbaum, R. L., Nelson, S. D., Nitiéma, P., & Newman, E. (2018). Media effects in youth exposed to terrorist incidents: A historical perspective. *Current Psychiatry Reports*, *20*(2), 1–8. https://doi.org/10.1007/s11920-018-0875-1

Piaget, J. (1966). *The origins of intelligence in children*. International University Press.

Poutvaara, P., & Ropponen, O. (2018). Shocking news and cognitive performance. *European Journal of Political Economy*, *51*(C), 93–106. https://doi.org/10.1016/j.ejpoleco.2017.03.006

Rees, C. A., Lee, L. K., Fleegler, E. W., & Mannix, R. (2019). Mass school shootings in the United States: A novel root cause analysis using lay press reports. *Clinical Pediatrics*, *58*(13), 1423–1428. https://doi.org/10.1177/0009922819873650

Riddle, K., Cantor, J., Byrne, S., & Moyer-Gusé, E. (2012). "People killing people on the news": Young children's descriptions of frightening television news content. *Communication Quarterly*, *60*(2), 278–294. https://doi.org/10.1080/01463373.2012.669340

Rideout, V. (2016). Measuring time spent with media: The common-sense census of media use by US 8- to 18-year-olds. *Journal of Children and Media*, *10*(1), 138–144. https://doi.org/10.1080/17482798.2016.1129808

Roche, S. P., Pickett, J. T., & Gertz, M. (2016). The scary world of online news? Internet news exposure and public attitudes toward crime and justice. *Journal of Quantitative Criminology*, *32*(2), 215–236. https://doi.org/10.1007/s10940-015-9261-x

Romer, D., Jamieson, K. H., & Aday, S. (2003). Television news and the cultivation of fear of crime. *Journal of Communication*, *53*(1), 88–104. https://doi.org/10.1111/j.1460-2466.2003.tb03007.x

Salomon, G. (1984). Television is "easy" and print is "tough": The differential investment of mental effort in learning as a function of perceptions and attributions. *Journal of Educational Psychology*, *76*(4), 647–658. https://doi.org/10.1037/0022-0663.76.4.647

Santana, A. D., Livingstone, R. M., & Cho, Y. Y. (2013). Print readers recall more than do online readers. *Newspaper Research Journal*, *34*(2), 78–92. https://doi.org/10.1177/073953291303400207

Sarsour, N. (2018). *Amid fear of shootings, parents and students count down till school's out for summer*. NBC news.

Saylor, C. F., Cowart, B. L., Lipovsky, J. A., Jackson, C., & Finch, A. J. (2003). Media exposure to September 11: Elementary school students' experiences and post-traumatic symptoms. *American Behavioral Scientist*, *46*(12), 1622–1642. https://doi.org/10.1177/0002764203254619

Silva, J. R., & Capellan, J. A. (2019). The media's coverage of mass public shootings in America: Fifty years of newsworthiness. *International Journal of Comparative and Applied Criminal Justice*, *43*(1), 77–97. https://doi.org/10.1080/01924036.2018.1437458

Smith, S. L., & Moyer-Guse, E. (2006). Children's fear responses to the war in Iraq. *Media Psychology*, *8*(3), 213–237. https://doi.org/10.1207/s1532785xmep0803_2

Smith, S. L., & Wilson, B. J. (2000). Children's reactions to a television news story. *Communication Research*, *27*(5), 641–673. https://doi.org/10.1177/009365000027005004

Storm-Mathisen, A. (2016). Grasping children's media practices - theoretical and methodological challenges. *Journal of Children and Media*, *10*(1), 81–89. https://doi.org/10.1080/17482798.2015.1121888

Stretesky, P. B., & Hogan, M. J. (2001). Columbine and student perceptions of safety. *Journal of Criminal Justice*, *29*(5), 429–443. https://doi.org/10.1016/S0047-2352(01)00100-3

Sundar, S. S. (2000). Multimedia effects on processing and perception of online news: A study of picture, audio, and video downloads. *Journalism & Mass Communication Quarterly*, *77*(3), 480–499. https://doi.org/10.1177/107769900007700302

Valkenburg, P. M. (2004). *Children's responses to the screen: A media psychological approach*. https://ebookcentral.proquest.com

Valkenburg, P. M., Cantor, J., & Peeters, A. L. (2000). Fright reactions to television. *Communication Research*, *27*(1), 82–99. https://doi.org/10.1177/009365000027001004

Van Den Bulck, J., & Van Den Bergh, B. (2000). The influence of perceived parental guidance patterns on children's media use: Gender differences and media displacement. *Journal of Broadcasting & Electronic Media*, *44*(3), 329–348. https://doi.org/10.1207/s15506878jobem4403_1

Vossen, H. G. M., Piotrowski, J. T., & Valkenburg, P. M. (2017). The longitudinal relationship between media violence and empathy: Was it sympathy all along? *Media Psychology*, *20*(2), 175–193. https://doi.org/10.1080/15213269.2015.1121825

Walma Van Der Molen, J. H. W., & Bushman, B. J. (2008). Children's direct fright and worry reactions to violence in fiction and news television programs. *Journal of Pediatrics*, *153*(3), 420–424. https://doi.org/10.1016/j.jpeds.2008.03.036

Walma Van Der Molen, J. H. (2004). Violence and suffering in television news: Toward a broader conception of harmful television content for children. *Pediatrics*, *113*(6), 1771–1775. https://doi.org/10.1542/peds.113.6.1771

Wilson, B. J., Martins, N., & Marske, A. L. (2005). Children's and parents' fright reactions to kidnapping stories in the news. *Communication Monographs*, *72*(1), 46–70. https://doi.org/10.1080/0363775052000342526

Wong, A. (2019). *When 'back to school' means back to mass-shooting fears*. The Atlantic.