
MEDIA COVERAGE OF TERRORISM: A META-ANALYTIC ASSESSMENT OF MEDIA USE AND POSTTRAUMATIC STRESS

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This meta-analysis integrates twenty-three studies of media coverage of terrorism and posttraumatic stress (PTS) to examine cumulative effect and potential moderators. Overall, a significant effect size ($r = .152$) for exposure to coverage of terrorism and PTS was found. Studies assessing PTS symptoms/reactions found greater effect sizes than studies assessing PTS disorder; studies assessing multiple media were associated with greater effects than those limited to television; youth samples yielded greater effects than adult samples; and studies of samples located farther away found greater effects than those of samples in the same city as the event.

Research in media effects has documented ways different media can influence emotions, thoughts, and behaviors.¹ For example, research has documented a relationship between viewing violent television content² or playing violent video games³ and aggression, between exposure to sexual media content and becoming sexually aroused,⁴ and between viewing certain types of media content and feeling fear.⁵ In addition, a relatively new body of media effects research focuses on how media coverage of terrorism is related to posttraumatic stress (PTS). This meta-analysis reviews and integrates the literature on media coverage of terrorism and PTS to determine the cumulative effect on PTS outcomes of exposure to terrorism coverage and to explore how characteristics of the event, the individual, and the research method moderate these effects.

Posttraumatic Stress Disorder (PTSD). PTSD is the most common outcome studied in relation to trauma research.⁶ PTSD is a popular measure because it is a diagnosable mental illness that can have profound negative effects. PTSD has been found to interfere with ability to work, to affect social and family relationships, and to be associated with an increased chance of attempted suicide.⁷ PTSD is a psychiatric illness with seven criteria to be met before diagnosis is positive.⁸ These include being exposed to a traumatic event (A1) and responding with intense fear, helplessness, or horror (A2); followed by persistently reexperiencing the event (B); persistently avoiding reminders of the event and

numbing responses (C); and exhibiting increased arousal (D). These symptoms (B through D) must endure for more than one month (E) and must impair functioning or cause clinically significant distress (F).⁹ Meeting some or many, but not all, of these criteria—although potentially problematic for the individual—will not result in a clinical diagnosis of PTSD.

Whether or not exposure to a traumatic event through the media is sufficient to meet Criterion A1 of the PTSD diagnosis is a matter of controversy in psychiatry.¹⁰ One authoritative source¹¹ allows for exposure to occur even if the event is witnessed (i.e., not experienced directly), and does not specify that the event must be witnessed “in person.”¹² Therefore, witnessing an event through the media may be sufficient to consider an individual exposed. Some researchers in psychiatry do not believe witnessing a traumatic event through the mass media is sufficient to satisfy Criterion A1;¹³ others disagree.¹⁴ This is a clinical debate, but regardless of whether or not it is sufficient to meet Criterion A1, it may still result in PTS symptoms or reactions.

Notwithstanding this debate, research investigating how media coverage of terrorism affects adults and children has often utilized some measure of PTS as an outcome. The connection between media use and PTS can be theoretically explained by consulting information processing theories, which have influenced models of media effects¹⁵ as well as models of PTSD.¹⁶ According to an information processing perspective, media content information is encoded, processed in short-term memory, and stored (or not stored) in long-term memory.¹⁷ Information processing theories also provide a basis for a cognitive PTSD model, with traumatic information experienced, encoded with high levels of fear, and stored as part of a trauma network in long-term memory.¹⁸ Trauma networks in long-term memory are elaborately interconnected and highly generalized, which is why they are easily accessible and may result in an individual with PTSD exhibiting attentional bias to environmental threat.¹⁹ A key element is the subjective appraisal that an event is of immediate and extreme threat, an appraisal that may occur when an event is in direct conflict with a person’s existing schemas about safety and/or his or her sense of self.²⁰ Mass media content has been found to affect, shape, or alter individual schemas;²¹ therefore, if the media provide information that captures the attention of an individual and the event is subjectively appraised to be a threat and challenges the individual’s sense of security or self, then such information could lead to formation of a fear and anxiety-laden trauma network. Terrorist attacks constitute the type of events that, when depicted in the media, could lead to the formation of new trauma networks, thus resulting in PTS. Therefore the following hypothesis is posited:

H1: Exposure to media coverage of terrorism will be positively associated with PTS.

Details of the Terrorism Event. Definitions of terrorism vary, but Pfefferbaum notes that most definitions propose that terrorism involves

“(1) the use of threat or violence, (2) to create fear and intimidation, (3) in an audience of indirect victims, ... (4) to affect changes in ideology, attitudes, and behavior.”²² Terrorist acts may share these basic components, but not all terrorist attacks are the same in terms of scope or impact. Differences in terrorism events (e.g., how many people were killed, how unusual the event was) likely play a role in determining reactions to media coverage of those events:

H2: The effect size of exposure to media coverage of terrorism and PTS will vary for different terrorist events.

Characteristics of the Individual.

Geographic Proximity. Being in closer proximity to a terrorism event increases the opportunity for event exposure (e.g., being hurt, witnessing the event, knowing someone who directly experienced it). Conversely, individuals who are geographically distant must rely more heavily on media coverage of an event to learn about what happened. Therefore, the association between exposure to media coverage of terrorism and PTS should be greater for individuals geographically distant from the event:

H3: The effect size of exposure to media coverage of terrorism and PTS will be greater for those who are farther away from the event compared to those who are closer to the event.

The Media Consumer. Numerous individual-level factors moderate mental health outcomes resulting from disaster exposure. Examples include gender, age, socioeconomic status, family structure, ethnicity, and prior psychiatric history.²³ Of these, age level is the one individual-level characteristic commonly available for examination in terrorism and media studies. Norris and colleagues found that school age disaster victims were at greater risk for negative outcomes compared to adults,²⁴ and Cantor has found that youth experience fright reactions to various forms of media coverage.²⁵ Therefore, it is predicted that youth will have greater PTS reactions to media coverage of terrorism than adults:

H4: The effect size for exposure to media coverage of terrorism and PTS will be greater for youth than for adults.

Research Design Issues.

Measuring PTS. Posttraumatic stress (PTS) is most commonly measured in one of two ways: one measure addresses the presence or absence of PTSD through a clinical diagnostic interview;²⁶ the other is a summation of an individual's posttraumatic stress symptoms (PTSS) or reactions (PTSR). Measuring PTSS/PTSR does not require that *all* PTSD criteria be met. PTSD is a dichotomous measure, while PTSS/PTSR are continuous measures of PTS ranging from no symptoms to all symptoms. Because PTSD is a more severe clinical condition that requires an

individual to possess all of a specific array of traumatic stress symptoms, media coverage of terrorism may be more strongly related to the continuous measures of PTSS/PTSR:

H5: The effect size of exposure to media coverage of terrorism and PTS will be greater for studies measuring PTSS/PTSR than it will be for studies measuring PTSD.

Media Modalities. Media exposure measures often differ with regard to what media modalities are assessed.²⁷ Some measures may ask only about exposure to television while others assess exposure to multiple media. Assessing the effects related to exposure to a single medium compared to assessing effects related to media may result in different levels of association between media use and PTS. The current media environment consists of multiple media forms,²⁸ and measuring exposure via several of these provides the opportunity for more sources of stimuli and content and may in turn explain more variance in the resulting PTS:

H6: The effect size of exposure to media coverage of terrorism and PTS will be greater for media measures examining exposure to multiple media modalities compared to media measures examining exposure to only television.

Research Timing. The timing of effect studies focused on major events may influence effect strength. Rogers recommends designing media effect studies that examine events “rather immediately after the event occurs” in order to capture strong effects.²⁹ Research conducted immediately after a disaster may result in greater effect sizes for exposure to media coverage of terrorism because the PTS reactions may fade as time passes:

H7: Quicker assessment of a terrorist event will be associated with greater effect sizes of exposure to media coverage of terrorism and PTS.

Study Selection. Studies for potential inclusion in this meta-analysis were identified by first searching PsycINFO, MEDLINE, Web of Science, and Dissertation Abstracts databases with the following search terms: *terrorist* or *terrorism*, plus *trauma*, *traumatic stress*, and *posttraumatic stress disorder* or *PTSD*. Reference sections of all studies so identified were searched for additional studies. Ultimately, to be included in the meta-analysis a study had to focus on a terrorist event, had to include a measure of PTS and media use, and had to either provide an effect size for the relationship between media use and PTS or include descriptive statistics that allowed computation of an effect size.

Numerous terrorism articles were located that examined PTS in relation to disasters, but were not included because they did not measure media use.³⁰ Several terrorism studies utilized a measure of media use but did not examine PTS as an outcome, focusing instead on fear, anxi-

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ety, or general negative emotion;³¹ or sociopolitical attitudes.³² A few terrorism studies examined media use and PTSD, but did not compare the two as part of their analysis and did not provide descriptive statistics allowing computation of an effect size.³³

Finally, the search process resulted in numerous studies based on the same data sets. Because including all such studies results in that data being overrepresented,³⁴ only the single article that best fit the inclusion criteria was retained.³⁵ Two studies met all inclusion criteria but did not report results allowing calculation of effect size.³⁶ However, authors of both were contacted and provided additional information allowing these studies to be included. Finally, one study³⁷ met the criteria for inclusion but was omitted because it utilized regression and there is no effective method for calculating effect size from *beta-weights*.³⁸ Ultimately, the search resulted in 23 studies,³⁹ with a total *N* of 22,670.

Data Coding. Two coders independently coded all variables in each included study. Minor coding discrepancies were resolved through discussion. Variables recorded for each study included the author(s), year, sample size (*N*), and effect size. Additional coded variables included the name of the specific terrorism event, an age category (youth, college, adult, or all ages) for each study's sample, a PTSS/PTSD variable that recorded whether the study utilized a dichotomous measure of PTSD or a continuous measure of symptoms, and a media variable (e.g., television, radio, newspaper, Internet) that recorded what media forms were included in each study. Additionally, geographic proximity of the sample to the terrorism event was coded as: same, with samples drawn from the same city in which the terrorism event occurred; different, with samples not drawn from the same city; and national, with samples from across the country and thus including people who did and did not reside where the event took place. Finally, a research timing variable indicated how long (in weeks) after the event a study was conducted. If the research project spanned several weeks, the value for the median week was recorded.

Data Analysis. Based on Hunter and Schmidt's recommendation,⁴⁰ the correlation coefficient *r* was utilized as the effect size measure. Most often, the coefficient was derived directly from the study. However, when necessary *r* was calculated using descriptive statistics (cell sizes for the relationship between PTS and media use), or converted to *r* from *F* (when the numerator *df* = 1), *t*, or χ^2 .⁴¹ In one instance,⁴² a significant *r* was reported by researchers without providing a value for the correlation. In this case, the effect size was calculated based on the reported probability value.⁴³ All effect sizes were corrected for sampling error by weighting each study according to the number of people in that study.⁴⁴ Sampling error is corrected in this manner because "all things being equal, studies with larger sample sizes provide a better estimate of the population parameter being measured."⁴⁵

Results

H1 addressed the relationship between exposure to media coverage of terrorism and PTSD. In order to test this hypothesis, a mean effect size was calculated for all of the studies included in this analysis (see

Table 1). The resulting mean weighted effect size for all studies was .152 (sd = .088). The 95% confidence interval for the effect size was .117 – .188. Therefore, exposure to media coverage of terrorism had a significant effect on PTS in these studies. The test of homogeneity of effect size was statistically significant, $\chi^2(22) = 332.34$, $p < .001$, indicating moderating variables.

As a result of the overall significant effect size and a significant test of homogeneity, continuing analysis for the purpose of discerning effects of moderator variables as described in the hypotheses is justified. The relationship between categorical moderator and the continuous effect size variables was explored by calculating Pearson correlation coefficients between the moderator and effect size. To calculate a correlation value for associations that include a dichotomous categorical variable (such as the variable for PTS measurement, which includes a categorical value of PTSD or PTSS/PTSR), the continuous effect size variable was correlated with a variable dummy-coded to reflect the dichotomous values of the categorical variable. Significant correlations mean there is an association between the moderator variable and effect size, meaning the variable being tested moderates the overall effect size. Following the individual analysis of each hypothesized moderator variable, a multiple regression model was calculated in order to examine the impact of each moderator variable while controlling for all other moderators.

H2 predicted that different terrorist events would be associated with different effect sizes. To test the effect of different terrorism events, studies focused on the September 11 attacks were compared to studies addressing all other terrorism events. The September 11 attacks resulted in the most deaths and the most destruction, and they were the most dramatic. Therefore exposure to media coverage of the attacks could be expected to be associated with more PTS than exposure to other events. The mean weighted effect size for September 11 studies ($K = 17$, $N = 17,035$, where K = the number of studies and N = the total number of participants in all studies) was .129 (sd = .170). The mean weighted effect size for other terrorism studies ($K = 6$, $N = 5,635$) was .151 (sd = .303). To determine whether the difference in terrorism events was a significant moderator of the overall effect size of exposure to media coverage of terrorism and PTS, the effect size variable was correlated with a dummy-coded terrorism event variable (non-September 11 event=0). The results indicate that terrorism events was not a significant moderator, $r = -.01$, $p = .95$.

H3 predicted that studies including participants further away from a terrorism event would report greater effect sizes than would research involving participants closer to the event. Mean weighted effect size for samples from the same city as the terrorism event ($K = 9$, $N = 10,560$) was .110 (sd = .192). For samples from a different city from where the terrorism event occurred ($K = 9$, $N = 2,796$), the mean weighted effect size was .188 (sd = .172). One study⁴⁶ was not used in exploring effect size for national sample studies because although it utilized a national sample it oversampled for New York City and Washington, D.C., residents (the study focused on the September 11 attacks), meaning half the final sam-

ple were residents from cities where the attacks occurred. For the remaining national sample studies ($K = 5$, $N = 7,054$), mean weighted effect size was .195 ($sd = .201$).

In order to test for a significant moderator effect, the different city and national samples were combined. Combining was appropriate because the vast majority of participants in a national sample are from places other than where the terrorism event took place. Furthermore, the mean weighted effect sizes for both groups were similar (.188 and .195), allaying concern about differences between the groups. In order to test whether the difference in geographic proximity to a terrorism event was a significant moderator of the overall effect size, the effect size variable was correlated with a dummy-coded proximity variable (same city as event=0). Results indicated that geographic proximity was a significant moderator, $r = .45$, $p < .05$.

H4 predicted that the effect size would be greater for youth than for adults. Samples of college students were re-coded as adult samples for this analysis, and the single study that included both youth and adults⁴⁷ was omitted. The mean weighted effect size for studies using adult samples ($K = 14$, $N = 14,646$) was .124 ($sd = .165$) and for studies based on youth samples ($K = 8$, $N = 4,918$) was .207 ($sd = .384$). For the correlation coefficient, age was coded as 0=youth. Results confirm that age level was a significant mediator, $r = -.51$, $p < .01$.

H5 predicted that the effect of media exposure on PTS would be greater for studies measuring PTSS/PTSR than for studies assessing PTSD. Mean weighted effect sizes for studies measuring PTSS/PTSR ($K = 19$, $N = 16,570$) was .191 ($sd = .269$) and for PTSD ($K = 4$, $N = 6,100$) was .049 ($sd = .067$). The correlation coefficient (PTSD=0) confirms that the PTSS/PTSR measurement was associated with greater effect sizes than the PTSD measurement, $r = .55$, $p < .01$.

H6 predicted studies assessing exposure to multiple media would result in larger effect sizes than would measures including exposure only to television. The mean weighted effect size for studies assessing exposure only to television ($K = 16$, $N = 20,752$) was .146 ($sd = .205$) and for studies involving multiple forms of media ($K = 7$, $N = 1,918$) was .220 ($sd = .167$). To calculate the correlation coefficient, the media modality variable was coded as 0=television only. Results indicate multimedia studies resulted in larger effects than television studies, $r = .39$, $p < .05$.

H7 predicted that research studies conducted closer to the time of the terrorism event would result in greater effect sizes than would later research studies. Length after event was coded for each study in median number of weeks. Time of study was not correlated with effect size, $r = .14$, $p = .25$.

Finally, in order to assess a single model of all the moderators proposed here, a linear regression model was calculated with the variables that proved significant when tested in isolation (geographic proximity, age level of the sample, PTS measurement, and media modality). The overall model was significant, $F(4, 23) = 6.01$, $p < .01$ and explained 56% of the variance in effect size across studies. Two moderators

TABLE 1

Studies Included in Meta-analysis

Author(s)	N	PTSD/ PTSS	Event	Location ¹	Age	Media Modalities ²	Research Timing ³	R
Aber et al. 2004	768	PTSS	9/11	Same	Youth	TV, N, R, M, I	64.0	.11
Ahern et al. 2002	906	PTSD	9/11	Same	Adult	TV	6.0	.06
Ahern et al. 2005(1) ⁴	840	PTSD	9/11	Same	Adult	TV	18.0	.09
Ahern et al. 2005(2)	1,084	PTSD	9/11	Same	Adult	TV	18.0	.09
Bernstein et al. 2007	1,787	PTSD	9/11	Same	Adult	TV	52.0	.08
Blanchard et al. 2004(1) ⁵	507	PTSS	9/11	Different	College	TV	8.0	.08
Blanchard et al. 2004(2)	336	PTSS	9/11	Different	College	TV	8.0	.05
Blanchard et al. 2004(3)	516	PTSS	9/11	Different	College	TV	8.0	.23
Cardena et al. 2005	3,106	PTSS	9/11	National	Both	TV	3.0	.20
Cardenas et al. 2003	305	PTSS	9/11	Different	College	TV	26.0	.11
Creson et al. 2003	91	PTSS	9/11	Different	Adult	TV	6.0	.30
DeRoma et al. 2003	420	PTSS	9/11	Different	College	TV, R	1.5	.36
Dougall et al. 2005	163	PTSS	Anthrax	Different	Adult	TV, N, R	10.0	.21
Fairbrother et al. 2003	427	PTSS	9/11	Same	Youth	TV	16.0	.14
Gidron et al. 2004	149	PTSS	Israel	National	Adults	TV, R	1.0	.10
Keinan et al. 2003	534	PTSS	Israel	National	Adults	TV	1.0	.24
Kennedy et al. 2004	40	PTSS	9/11	Different	Youth	TV	4.0	.37
Lengua et al. 2005	151	PTSS	9/11	Different	Youth	MN	5.0	.39
Miguel-Tobal et al. 2006	1,483	PTSD	Train bomb	Same	Adult	TV	8.0	-.05
Pfefferbaum et al. 1999	3,218	PTSS	OKC	Same	Youth	TV	7.0	.22
Pfefferbaum et al. 2003	88	PTSS	OKC	Different	Youth	TV, R, N, M	104.0	.43
Phillips et al. 2004	47	PTSS	9/11	Same	Youth	TV	12.0	.30
Saylor et al. 2003	179	PTSS	9/11	Different	Youth	TV, N, I	7.0	.22
Schlenger et al. 2002	2,260	PTSS	9/11	National	Adult	TV	6.0	.15
Schuster et al. 2001	556	PTSS	9/11	National	Adult	TV	.5	.13
Silver et al. 2002	2,709	PTSS	9/11	National	Adult	TV	2.5	.20

Note: ¹Same = research sample is drawn from same city in which terrorism event took place, Different = research sample is not drawn from the same city in which the terrorism event took place, National = research uses national sample, some of the participants are from the same city in which the event took place but most are not. ²TV = television, N = newspaper, R = radio, M = magazine, I = Internet, V = video on public transportation, MN = media or news coverage. ³Research timing value is mean number of weeks following event that assessment took place. ⁴Ahern and colleagues (2005) included two research samples, the first directly affected by 9/11, the second not directly affected. ⁵Blanchard and colleagues (2004) reported on three different samples; the first was located in Albany, NY, the second in August, GA, and the third in Fargo, ND.

remained significant when testing all moderators simultaneously, geographic proximity ($\beta = .63, p < .05$) and age level of the sample ($\beta = .65, p < .01$).

Discussion

This meta-analysis combined previous research to determine the effect of exposure to media coverage of terrorism on PTS and to determine what variables moderated this relationship. This analysis found a significant effect size for exposure to media coverage of terrorism and PTS, as the weighted mean effect size was $r = .152$. Converting r to Cohen's d results in $d = .31$, a small effect size according to Cohen's guidelines.⁴⁸ However, though this effect size is small, these results are comparable to the effect size documented in meta-analyses of cross-sectional and longitudinal studies of viewing television violence and aggression.⁴⁹ Additionally, when considering the prevalence of media coverage of terrorism after an event such as the Oklahoma City bombing or the September 11 attacks, as well as the potentially problematic impact of PTS on individuals, even small effects are likely to be meaningful from a public health perspective (in that large numbers of people not directly involved with a terrorist event may exhibit PTS symptoms or reactions) and from a clinical perspective (in that a relatively small number of people might exhibit a clinically relevant number of PTS symptoms).

Several hypothesized moderators were related to the effect size of exposure to media coverage of terrorism and PTS. First, studies that measured PTSS/PTSR were associated with greater effect sizes than studies that measured PTSD. Because PTSD is a much higher threshold to meet than PTSS, other variables likely play a more significant role in the development of PTSD and thus diminish the importance of media. Though media use may contribute to this process or exacerbate it, the direct relationship between media exposure and PTSD is weaker than the association between media exposure and PTSS. PTSS/PTSR is essentially a more expansive measure of PTS than PTSD and therefore provides more opportunity to discern the role of media exposure.

The second significant moderator concerned the media included in the media exposure measure. Exposure to media coverage of terrorism through multiple media was associated with greater effect sizes than exposure to television alone. This may be because as the media universe continues to expand and more people obtain information about the world from the Internet or other emerging technologies such as personal digital assistants (PDA) and cell phones, the more powerful these modalities become in shaping thoughts, emotions, and attitudes. Future media effects research should explore the effects of media forms other than television, particularly for events like terrorism where "coverage of the event typically floods the media landscape."⁵⁰

The final two significant moderators—age and geographic proximity to event—proved to be the most powerful moderators, as both remained significant in a regression model. Effect sizes for exposure were greater for youth than for adults. From an information processing perspective, youth have less experience (and less cognitive information in their long-term memory) through which to filter media coverage of terrorism; therefore, media content that fills the airways following a ter-

rorist event may create trauma networks in the long-term memory of youth more easily than adults.

Geographic proximity proved important in moderating overall effect sizes, in that being farther away from the terrorism event was associated with greater effect sizes. Individuals closer to an event are likely to have more direct experience with that event. For example, an individual in Manhattan on September 11 was more likely than someone living in Boise, Idaho, to be involved in the attacks; to see the attacks; to know someone killed, hurt, or involved in the attacks; or to have other interpersonal, community, or environmental exposure to the attacks. For the individual in Boise, exposure likely occurred through the media, whereas for the resident of Manhattan, the majority of the experience (or the most powerful aspects of the experience) may have come from sources other than the media (such as directly experiencing the event or hearing about it from family, friends, or neighbors who directly experienced the event). Being farther away means individuals depend more heavily on the media to experience the event. This does not mean that those close to an event may not seek out media coverage for information or catharsis,⁵¹ but it does mean that being close provides more non-media opportunities to experience the event directly. These exposure differences explain, in part, why exposure to media coverage of terrorism is more strongly associated with PTS for those not in the city of the event compared to those who *are* in that city. Future research should continue to explore media use motivations and effects for people both close to and removed from a disaster to further clarify these dynamics.

The role of geographic proximity also sheds light on the question of causality. The effect sizes reported in all of these studies represent the association between exposure to media coverage of terrorism and PTS. Researchers in these studies often imply that media exposure causes PTS, but there is always a possibility that the causal process runs the other way (i.e., PTS causes people to consume media coverage). This reverse process is unlikely for distant individuals because PTS is measured relative to the event. If a study examines PTS related to the September 11 attacks, then the PTS symptoms measured are only related to exposure to that event.

For the studies that involve samples not located in the same city as the event, individuals in those samples (or at least the great majority) do not have direct experience with the terrorism event. They may gain some knowledge of the event through interpersonal channels (the effect of which should be explored in future research), but their exposure occurs primarily through the media, which provide the potential dramatic, real-time, and repetitive coverage of the terrorist events. These remote individuals do not have pre-existing PTS related to the event that then motivates them to consume more media about the event. So the causal process in these remote individuals cannot be one in which PTS causes them to pursue media coverage of terrorism; rather, it must be that the media coverage of terrorism causes PTS. Traumatic reactions to the initial media exposure of the event may cause individuals to seek yet more media coverage of the event—resulting in a reinforcing spirals⁵² process in which

PTS reactions motivate consuming more media coverage, causing even more (or sustaining current levels of) PTS reactions—but media coverage of the event provides the exposure that begins the PTS process.

This greater effect size for those removed from the event does not mean that exposure to media coverage of terrorism is a “magic bullet” that causes everyone to develop PTS. As with other areas of media effects, individual differences⁵³ likely determine who does and does not develop PTS, as well as the severity of PTS reactions. One important individual difference was identified in this analysis, in that being a youth was associated with higher levels of PTS, even when controlling for all of the other proposed moderators. Additional individual differences should be investigated through future research.

A few hypothesized moderators were not related to the effect size. Differences in the terrorism event, operationalized as the September 11 attacks compared to other terrorism events, did not result in different effect sizes. Therefore, it is not just exposure to media coverage of the most dramatic terrorism events that is associated with PTS, but, instead, media coverage of other terrorism events is also potentially traumatizing.

It was also predicted that the timing of the research would be related to the overall effect size, with studies conducted sooner after the event producing stronger results than those occurring later. This prediction was not supported, indicating that both media use and PTS measures are stable over time. The studies included in this analysis were conducted from .5 to 104 median weeks post-event, yet such variability was not associated with different effect sizes. Instead, PTS reactions appeared quickly and were sustained.

There are a few key limitations of this research. First, the analysis included only published research. A dissertation database was searched in order to identify non-published research, but no studies that met the inclusion criteria were identified. This does not mean appropriate unpublished research does not exist, but it was not located. While it is the goal of meta-analysis to include all research, published and non-published, the results of the analysis provided here are at least bolstered by the clear quality of the included studies. A second limitation is that the analysis could only focus on questions for which there are existing data. Future research is necessary to improve our understanding in this area.

From a practical perspective, the main lesson emerging from this research is that youth who are geographically removed from a terrorism event are at greater risk for developing PTS related to exposure to media coverage of the event. The needs of youth not directly affected by terrorism may not be obvious in the aftermath of a terrorist attack, but, according to these results, this group experiences the greatest amount of PTS related to exposure to media coverage of terrorism. Clinical recommendations for helping children process media coverage of disasters exist,⁵⁴ but additional research focused on interventions for youth not directly affected by terrorism that are aimed at ameliorating these

potentially negative effects of media use is needed. Future research should also explore the role of family communication and interaction with peers in moderating traumatic reactions to media coverage of terrorism among youth.

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