



## Posttraumatic Stress Related to Orlando Nightclub Shooting: LGBTQ Identity and Media Use

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### ABSTRACT

This study examined posttraumatic stress symptoms in a sample of U.S. adults ( $N = 1015$ ) to examine the mental health impact of the Pulse Nightclub shooting media exposure. Direct and indirect relationships between LGBTQ identity, media use, emotions to media, and posttraumatic stress symptoms (PTS) related to the Pulse Nightclub shooting were examined using Structural Equation Modeling (SEM). Results found Pulse shooting media use had a direct effect with emotional reactions and PTS, and identifying as LGBTQ had a direct effect between stronger emotional reactions and PTS. Results also found that discontinuing use of Pulse shooting media coverage mediated the relationship between exposure to media coverage and PTS.

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On June 12, 2016 one of the deadliest mass shootings and incidents of violence against lesbian, gay, bisexual, transgender, and queer (LGBTQ) people occurred at Pulse, a gay nightclub in Orlando, Florida. The gun man who committed the mass shooting killed 49 people and injured 53 more. At the time, this was the deadliest mass shooting in modern U.S. history (Zambelich & Hurt, 2016). During the attack, many individuals involved used social media to communicate what was happening (Richardson, 2016), and this social media content was further disseminated via traditional media (Nielsen, 2016).

Mass shootings like the Pulse Nightclub Shooting are a form of intentional human-caused disasters (McFarlane & Norris, 2006). Direct exposure to intentional human-caused disasters have been found to be associated with more severe mental health reactions when compared to disasters that occur as a result of natural hazards or non-intentional human causes

(Norris et al., 2002), and mass shooting exposure has been found to be associated with PTS, anxiety, and depression (Shultz et al., 2014). Mass shootings receive significant media coverage and although most people have not experienced a mass shooting directly, many have been indirectly exposed via this media coverage (Shultz et al., 2014). However, the mental health effects of exposure to media coverage of mass violence are understudied. Thus, in the current study we help address this gap in knowledge by studying the mental health effects of exposure to Pulse shooting media coverage.

### ***Mass shooting media, social identity, and mental health***

Although the number of mass shootings in the U.S. continues to rise (Ledur et al., 2022), only a few research studies have examined these effects of exposure to media coverage of these events. Goodwin et al. (2016) conducted a study of the effects of media coverage of the Charlie Hebdo attacks (a terrorist attack that included significant use firearms and killed 12 individuals) on French adults. They found that more use of traditional and social media coverage of the attacks was associated with higher levels of distress and resulted in reports of stronger relationships with friends and family. Another study examined the impact of exposure to media coverage of the 2002 D.C sniper attacks in the U.S. During this prolonged event, 10 people were killed in the Washington, DC area via single sniper shots (Mash et al., 2016). Although not a typical mass shooting that occurs at a single location and time (Shultz et al., 2014), given the limited literature on mass shooting media effects this research is useful. Fullerton et al. (2019) found that viewing more television coverage of the sniper attack was related to more PTS and depression, and to less perceived safety. Finally, Thompson et al. (2019) examined the effects of attention to media coverage of both the Boston Marathon Bombing and the Pulse Nightclub Shooting. Their study of  $N = 3341$  U.S. adults who completed two waves of data, found that more use of Pulse media was associated with more acute stress approximately five days after the shooting. Thus, exposure to media coverage of collective traumatic events (such as disasters resulting from natural hazards or human causes) have been found to result in posttraumatic stress reactions for individuals who do and do not experience those events directly (Houston et al., 2018; Pfefferbaum et al., 2014).

The Pulse Nightclub Shooting was also the deadliest single episode of violence against LGBTQ individuals in the U.S. and represented a hate crime, which is an intentional act motivated by group bias (Hancock & Haldeman, 2017; Stults et al., 2017). As such, the Pulse Nightclub Shooting was an episode of mass violence that was an explicit attack on a specific

social group. Social identities include the groups and categories to which individuals belong and the values ascribed by individuals to that belonging (Tajfel, 1978). Social identity threat can occur when discrimination or harm is perceived to occur (or potentially occur) because of a devalued identity (Fingerhut & Abdou, 2017). An identity may be perceived to be devalued through different mechanisms, such as the direct experience of discrimination or the indirect experience of cultural stereotypes. The indirect experience of social identity threat may occur via mediated contexts (Saleem & Ramasubramanian, 2019).

Research documented that awareness of the attack on the LGBTQ individuals at the Pulse nightclub was associated with a variety of reactions among people who identify as LGBTQ. For example, LGBTQ individuals reported feeling distress and concern for their personal safety following the Pulse Nightclub Shooting (Jackson, 2017; Stults et al., 2017). Greater perceived identification with victims of mass violence attacks has been found to be associated with more PTS and depression (Mash et al., 2016). Identification may cause individuals to perceive themselves to be more at risk because they are similar to those affected by the event, and/or perceived similarity may result in more empathy for the victims (Houston et al., 2018; Kaplan, 2008). Increased perceptions of threat may in turn be related to more information seeking behavior regarding that threat (Coan et al., 2021). This information seeking may be driven by a desire to better understand the threat and stay safe. Thus, LGBTQ participants may report paying more attention to media coverage of the Pulse nightclub shooting and may experience stronger emotional reactions to that media coverage.

Overall, the collective trauma media effects literature tends to depict a dose relationship between the amount of media use and related effects (Houston et al., 2018; Pfefferbaum et al., 2014). That is, watching, reading, or listening to more media coverage will result in stronger effects related to that use. However, a few studies suggest that some individuals who are affected by media coverage might decide to stop using media following a collective traumatic event because of the negative reactions they are experiencing (Pfefferbaum et al., 2012, 2014). For example, in a study of the 1993 Oklahoma City bombing, Pfefferbaum et al. (2012) found that individuals who quit watching, listening, or reading bombing media coverage because “it was so frightening” reported more bombing-related PTS and depression. In a similar study focused on the U.S. September 11, 2001 terrorist attacks (9/11), Pfefferbaum et al. (2014) found that quitting watching, listening, or reading 9/11 media coverage due to fear was related to more 9/11-related PTS. Based on these findings related to discontinuing media use, individuals who decide to stop paying attention to media coverage of the Pulse nightclub shooting may report more PTS. From this perspective, stopping

media use may be employed when experiencing more media-related distress. Furthermore, while stopping media use may have an association with PTS symptoms, it may also serve as an important mediator between paying attention to mass trauma media coverage and PTS. Thus, stopping media use could provide a negative or inverse relationship between Pulse nightclub shooting media use and PTS.

In sum, these studies call for more understanding of the mental health impacts of mass violence events, to identify possible risk factors that may further compound trauma and increase post-traumatic difficulties for community members, particularly for members with similar social identities. Based on the review above, we posit the following hypotheses:

*H1:* a) Using more Pulse shooting media use will be associated with stronger emotional reactions and PTS, and b) emotional reactions will positively mediate the relationship between media use and PTS.

*H2:* Individuals who identify as LGBTQ will report a) more media use, b) stronger emotional reactions to Pulse Shooting media coverage than non-LGBTQ individuals and, c) emotional reactions will positively mediate the relationship between individuals who identify as LGBTQ and Pulse Shooting PTS.

*H3:* Discontinuing use of Pulse Shooting media coverage will negatively mediate the relationship between exposure to Pulse Shooting media coverage and Pulse Shooting PTS.

## Method

### *Participants and procedures*

Data collection procedures were approved by the [Removed for Review] Institutional Review Board (IRB). In order to test our proposed hypotheses, we conducted a cross-sectional survey in June 2016 among a U.S. sample of 1015 participants and used structural equation modeling (SEM). Participants were recruited from Amazon Mechanical Turk (MTurk), a crowdsourcing website where tasks are posted that users complete for compensation. We posted an opportunity for U.S. users to complete a survey about the mass shooting at the Pulse nightclub in Orlando, Florida. We offered \$2.00 for survey completion. In total, 1040 users participated in the survey. Twenty-five participants completed fewer than half all items in the survey or straight-lined their survey responses and were thus dropped from analysis, resulting in a final sample of  $N=1015$ . Data were collected June 23–24, 2016, approximately two weeks after the Pulse nightclub shooting.

Overall, 73.1% of participants reported their race as White ( $n=742$ ), 6.6% as Black ( $n=67$ ), 9.5% as Asian ( $n=96$ ), 7.6% as Hispanic ( $n=77$ ), 1.2% as Native American ( $n=12$ ), and 1.9% as other or multi-racial ( $n=19$ ). Regarding age, 19.7% were 18–29 ( $n=200$ ), 44.2% were 26–35 ( $n=449$ ), 19.5% were 36–45 ( $n=198$ ), 9.0% were 46–55 ( $n=61$ ), and 7.6% were 56 and older ( $n=77$ ). Highest education level was reported by 1.7% as some high school ( $n=17$ ), 10.9% as high school graduate ( $n=111$ ), 34.8% as some college ( $n=353$ ), and 52.5% as college graduate or higher ( $n=533$ ).

## **Measures**

### ***LGBTQ identity***

We assessed gender and sexual identity using questions developed by The GenIUSS Group (2014). We asked participants what sex they were assigned at birth on their original birth certificate, and 53.8% ( $n=546$ ) reported male and 46.2% ( $n=469$ ) reported female. We also asked participants to report their gender identity by asking them if they described themselves as male (53.8%,  $n=546$ ), female (45.2%,  $n=459$ ), transgender (0.3%,  $n=3$ ), or do not identify as female, male, or transgender (0.5%,  $n=5$ ). Two participants did not respond to the gender identity question (0.2%). For sexual identity, we asked participants whether they thought of themselves as straight, gay, or bisexual and instructed them to select all that applied. Most participants (88.4%,  $n=897$ ) reported their sexual identity as straight, while 3.8% ( $n=39$ ) reported gay, and 6.2% ( $n=63$ ) reported bisexual. Additionally, 0.6% ( $n=6$ ) reported they were both straight and gay, and 0.7% ( $n=7$ ) reported they were gay and bisexual. For analysis, we dichotomized gender and sexual identity. Participants who reported their gender identity as male or female *and* their sexual identity as straight were recoded as non-LGBTQ (88.4%,  $n=897$ ), and we recoded all other participants as LGBTQ (11.6%,  $n=118$ ). The percentage of LGBTQ individuals in our sample is approximately double the U.S. percentage, which was estimated to be 5.6% in 2020 (Morales, 2021).

### ***Pulse shooting media use***

Collective trauma media use studies typically assess overall media use related to a specific event (e.g., Bui et al., 2012; Pfefferbaum et al., 2014) or measure exposure to specific, usually graphic, media coverage of the event (e.g., Ahern et al., 2002; Jones et al., 2016). For the current study we utilized the latter approach. This is because media and social media coverage of the Pulse nightclub shooting at times included text messages and cell phone calls from victims experiencing the shooting, cell phone video of

events from individuals inside the nightclub, and police scanner audio describing the situation and police response (Mozingo et al., 2016). Additionally, media and social media coverage often focused on describing the shooter who committed the crime (Barry et al., 2016). Thus, to measure Pulse shooting media use, we assessed attention to these graphic and personal aspects of media coverage of the shooting. Specifically, we asked participants how often they paid attention to six types of media content on TV, in newspapers, online, or on social media: (a) personal video from people inside the Pulse nightclub during the shooting ( $M = 2.75$ ,  $SD = 1.34$ ), (b) recordings from 911 phone calls about the shooting ( $M = 2.43$ ,  $SD = 1.25$ ), (c) police scanner audio from the shooting response ( $M = 1.93$ ,  $SD = 1.15$ ), (d) stories about the shooting victims ( $M = 3.64$ ,  $SD = 1.15$ ), (e) stories about shooting survivors ( $M = 3.62$ ,  $SD = 1.18$ ), and (f) information about the shooter ( $M = 3.83$ ,  $SD = 1.11$ ). Response options ranged from 1 (*never*) to 5 (*a great deal*).

### ***Emotional reactions to media***

We assessed negative emotional reactions to Pulse shooting media coverage by asking participants to report how (a) afraid ( $M = 2.40$ ,  $SD = 1.17$ ), (b) angry ( $M = 3.73$ ,  $SD = 1.16$ ), and (c) sad ( $M = 4.00$ ,  $SD = 1.11$ ) the news made them when watching or reading about the Pulse shooting on TV, in newspapers, online, or on social media. Response options ranged from 1 (*not at all*) to 5 (*extremely*).

### ***Discontinuing media use***

To assess stopping Pulse shooting media use, we asked participants, “Since the shooting, did you ever decide to stop watching or reading news about the Pulse nightclub shooting?” Response options were 1 (*no*;  $n = 647$ , 63.74%) and 2 (*yes*;  $n = 368$ , 36.26%).

### ***Posttraumatic Stress (PTS) impact of Pulse Nightclub Shooting***

We assessed the posttraumatic stress impact of the Pulse Nightclub shooting using the Impact of Event Scale-Revised (IES-R, Weiss, 2007). The IES-R contains 22 items that assess symptoms of Posttraumatic Stress Disorder (PTSD) along three sub-scales (intrusion, avoidance, and hypervigilance). We asked participants to report how distressing each scale item had been for them during the past week with respect to the Orlando mass shooting in the Pulse nightclub. Example items include, “I had trouble staying asleep,” “I thought about it when I didn’t mean to,” “I was jumpy and easily startled,” and “I had waves of strong feelings about it.” Response options for each ranged from 0 (*not at all*) to 4 (*extremely*). Responses can be

summed for an overall measure of PTS with a possible range of 0 to 88 ( $M = 17.29$ ;  $SD = 16.20$ ;  $\alpha = .95$ ).

### **Covariates**

Our analysis controlled for three variables. First, because the Orlando Pulse Shooting occurred during Latin Night at the Pulse nightclub, we controlled for Latinx identity. We did this because we posited that identifying as Latinx might result in perceived similarity with those directly affected by the shooting, much like what we predicted would occur for LGBTQ participants and our sample did not include enough individuals who reported being LGBTQ and Latinx to consider the impact of intersecting identities. For this control variable we dichotomized our race variable as 0 (*Not Hispanic*,  $n = 938$ ) and 1 (*Hispanic*,  $n = 77$ ). Second, we controlled for age. Given that individuals who go to nightclubs are often younger adults, we posited that being younger might result in more identification with those directly affected by the shooting. Lastly, we controlled for gender, because female participants are often found to report higher levels of PTS related to disaster exposure compared to males (Lowe & Galea, 2017; Norris et al., 2002).

### **Data analysis**

Our hypothesized structural model was examined using structural equation modeling (SEM) with the *Lavaan* package in R software (R Core Team, 2011; Rosseel, 2012). Through a two-step procedure suggested by Kline (2011), first, a measurement model was estimated to verify general model fit of indicators for each latent variable (e.g., media use, emotional reactions, and PTS), and then the structural model was examined to analyze paths between variables in the model. To estimate the SEM models, the fixed factor method was used and a robust maximum likelihood estimation to ensure multivariate normality (Kline, 2011). The indirect effects between variables were further tested using Preacher and Hayes (2008) procedure by inspecting the 95% confidence interval of 1,000 bootstrapped resamples of the product of coefficients to ensure the confidence intervals do not include zero, and therefore the effect is considered statistically significant. Guidelines for goodness of fit indices were assessed by the following criteria and values from the output (Little, 2013): Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI)/Non-Normed Fit Index (NNFI) above .90, Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) below .08.



**TABLE 1** Measurement model.

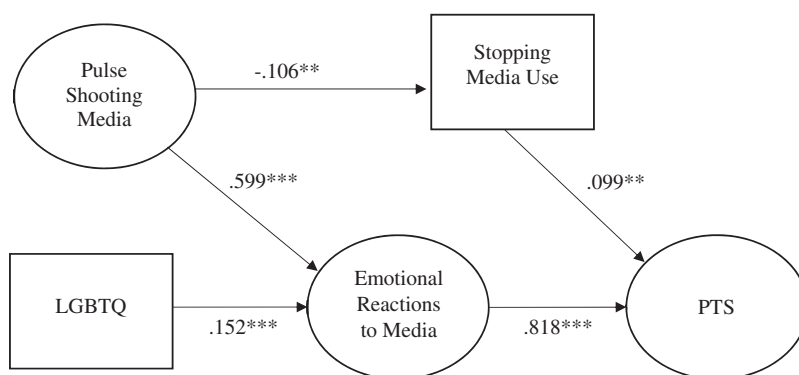
Latent variables and indicators	Factor loading	Standard error
Media use		
MU1	0.736	0.040
MU2	0.708	0.043
MU3	0.630	0.041
MU4	0.588	0.041
MU5	0.613	0.041
MU6	0.424	0.039
Emotional reactions		
ER1	0.868	0.040
ER2	0.460	0.038
ER3	0.456	0.036
PTS		
PTS1	0.952	0.186
PTS2	0.732	0.215
PTS3	0.922	0.168

## Results

We first conducted a confirmatory factor analysis of the measurement model to ensure the study's indicators represented the latent variables well (Table 1). In order to preserve just-identified measurement and reduce correlated residuals as well as sampling errors (Little et al., 2013), 22 items for the PTS were parceled into three indicators by the sub-dimensions of the variable (intrusion, avoidance, and hypervigilance; Weiss, 2007). The measurement model fit was  $\chi^2(51) = 1247.465$ ,  $p < .001$ , RMSEA = .155, CFI = .818, TLI = .765, SRMR = .099. To achieve acceptable model fit, additional inspections including modification indices and residual matrix were conducted with inspecting highly correlated items. Based on that, the following correlated residual variances and covariances were included in the measurement model by checking inspections of each step: media use item 1 and 2, media use item 2 and 3, media use item 4 and 5, media use item 4 and 6, media use item 5 and 6, media use item 4 and emotional reactions item 2 (angry), media use item 5 and emotional reactions item 2, media use item 4 and emotional reactions item 3 (sad), media use item 5 and emotional reactions item 3, and emotional reactions item 2 and 3. The final measurement model was acceptable with the following values:  $\chi^2(41) = 226.312$ ,  $p < .001$ , RMSEA = .068, CFI = .972, TLI = .954, SRMR = .042. The factor loadings for each latent variable were good with values higher than 0.4. See Table 1 for factor loadings for all latent variables and indicators. After establishing the measurement model the structural model was estimated. In the structural model, demographic variables, such as age, gender, and race (Latinx), were included as covariates in analyzing relationships between variables. The structural model fit was good with the following values (see Figure 1):  $\chi^2(90) = 567.277$ ,  $p < .001$ , RMSEA = .072, CFI = .934, TLI = .905, SRMR = .049.

Our first hypothesis (*H1a*) predicted that more Pulse shooting media use will be associated with emotional reactions and PTS and this hypothesis





**FIGURE 1** Final structural model. *Note.* Age, gender, and race were included as control variables in the model.  $^{**}p < .01$ ;  $^{***}p < .001$ .

was supported. We found that Pulse shooting media use was a significant predictor of emotional reactions ( $\beta = .599$ ,  $p < .001$ ), and emotion reactions were associated with PTS ( $\beta = .818$ ,  $p < .001$ ). Next, *H1b* predicted that emotional reactions will positively mediate the relationship between Pulse shooting media use and PTS. This hypothesis was also supported, as the indirect path from media use to PTS through media emotional reactions was significant ( $\beta = .490$ ,  $SE = .089$ , 95% CI [.630, .985]) based on the 95% confidence interval from 1,000 bootstrapped resamples.

Our second hypothesis (*H2a*) predicted that LGBTQ participants would pay attention to more Pulse shooting media coverage than non-LGBTQ individuals. However, this hypothesis was not supported ( $\beta = -.011$ ,  $p = .776$ ). Conversely, *H2b* predicted that LGBTQ individuals would report stronger emotional reactions to Pulse shooting media coverage than non-LGBTQ individuals and this hypothesis was supported ( $\beta = .152$ ,  $p < .001$ ). In addition, *H2c* predicted emotional reactions will positively mediate the relationship between individuals who identify as LGBTQ and Pulse Shooting PTS and this hypothesis was supported ( $\beta = .124$ ,  $SE = .153$ , 95% CI [.359, .954]) based on the 95% confidence interval from 1,000 bootstrapped resamples.

Our final hypothesis (*H3*) predicted that discontinuing Pulse shooting media use would negatively mediate the relationship between Pulse shooting media use and PTS. This hypothesis was supported. More Pulse shooting media use was negatively associated with discontinuing media use ( $\beta = -.106$ ,  $p = .004$ ) and discontinuing media use was associated with PTS ( $\beta = .099$ ,  $p = .001$ ). Mediation results found the indirect path from Pulse shooting media use to PTS through discontinuing Pulse shooting media use was found to be significant and provide a negative or inverse relationship between Pulse shooting media use and PTS ( $\beta = -.010$ ,  $SE = .008$ , 95% CI [-.035, -.004]) based on the 95% confidence interval from 1000

**TABLE 2** Results of regression paths for media use and emotional reactions.

	Media use (media)			Emotional reactions (emotion)		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
LGBTQ	-.036	.126	-.011	.645	.140	.152***
Media use	—	—	—	.812	.080	.599***
Age	.053	.033	.062	-.149	.047	-.127**
Gender	-.118	.080	-.058	-.647	.107	-.237***
Race	.282	.141	.074*	.154	.187	.030

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**TABLE 3** Results of regression paths for stopping media use and PTS.

	Stopping media (STOP)			Posttraumatic stress (PTS)		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Media use	-.051	.017	-.106**	—	—	—
Emotional reactions	—	—	—	.981	.086	.818***
Stopping media	—	—	—	.337	.097	.099**
Age	-.036	.013	-.087**	-.045	.043	-.032
Gender	-.063	.030	-.066*	.638	.122	.194***
Race	-.035	.053	-.019	-.279	.170	-.045

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**TABLE 4** Results of indirect pathways.

Path	1000 bootstrapping resamples				
	<i>B</i>	<i>SE</i>	$\beta$	LLCI	ULCI
LGBTQ > MEDIA > STOP	.002	.007	.001	-.010	.017
LGBTQ > MEDIA > STOP > PTS	.001	.002	.000	-.004	.006
LGBTQ > MEDIA > EMOTION	-.029	.105	-.007	-.237	.170
LGBTQ > MEDIA > EMOTION > PTS	-.029	.103	-.006	-.225	.165
LGBTQ > EMOTION > PTS	.633	.153	.124***	.359	.954
MEDIA > STOP > PTS	-.017	.008	-.010*	-.035	-.004
MEDIA > EMOTION > PTS	.797	.089	.490***	.630	.985

Note. LGBTQ: Lesbian, gay, bisexual, transgender, and queer participants (versus non-LGBTQ participants); MEDIA: Pulse Nightclub Shooting media use; STOP: discontinuing Pulse Nightclub Shooting media use; EMOTION: Pulse Nightclub Shooting media emotional reactions; PTS: Posttraumatic stress reactions to Pulse Nightclub Shooting.

\* $p < .05$  and \*\*\* $p < .001$ .

bootstrapped resamples. See Figure 1, Tables 2, 3, and 4 for the structural model estimates.

## Discussion

This study examined the direct and indirect relationships between Pulse Nightclub Shooting media use and LGBTQ identity on PTS related to the event. Our results indicate several main findings. First, we found that following a mass shooting that purposefully and explicitly targeted LGBTQ individuals (Hancock & Haldeman, 2017), that individuals who identified as LGBTQ reported stronger emotional reactions to media coverage of the event compared to non-LGBTQ participants, and that these emotional

reactions were then related to more PTS. Thus, in the current case, LGBTQ individuals were more at risk for mental health challenges following the Pulse shooting compared to others. This means that just as some groups are more at risk to experience the negative effects of experiencing a disaster event directly (Tierney, 2014), so too are certain groups more vulnerable to (indirect) mediated effects of collective trauma.

In the U.S., mass shootings have often targeted historically marginalized groups. For example, the 2015 Charleston church shooting targeted Black Christians, the 2019 El Paso shooting targeted the Latinx community, the 2018 Pittsburgh synagogue shooting targeted Jews, the 2012 Wisconsin Sikh temple shooting targeted Sikhs, the 2021 Atlanta spa shootings targeted the Asian American community, and the 2022 Buffalo supermarket shooting targeted African-Americans. In each of these cases, we would expect that individuals who share the identity of those directly attacked would also have more significant reactions to media coverage of those events. Mental health professionals and community organizations should be aware of this connection and make efforts to conduct outreach to members of the community affected, regardless of geographic proximity to the tragedy (First et al., 2020).

Second, we found that exposure to more Pulse Nightclub Shooting media was associated with greater PTS related to the event, and this relationship was mediated by negative emotional reactions to Pulse shooting media use. These results align with prior literature illustrating media effects resulting from mass violence media use can produce a cycle of distress (Houston et al., 2018). Coverage of mass violence events can cause negative emotional reactions that can drive people to consume more trauma-related media, which may lead to more distress and impact their mental health in the long-term. These findings are important for mental health professionals given the regularity of mass shootings in the U.S. and repeated exposure to mass violence media.

Overall, these results illustrate that exposure to mass violence media can have pervasive mental health effects on individuals, and repeated media-related experiences of distress may further the relationship between mass violence media and PTS. In terms of implications, guidelines and resources on mass violence media use and mental health should be widely distributed to the public. Furthermore, mental health providers can assist with providing psychosocial resources to help address distress and emotional reactions to media (Taylor, 2011).

Third, we also examined the effect of discontinuing Pulse Shooting media use on PTS. Choosing to stop paying attention to collective trauma media coverage has been examined in a few studies (Pfefferbaum et al., 2012, 2014), but it is not a widely studied phenomenon. We conceptualized

stopping mass violence media use as a behavioral response state, and posited that this action would mediate the relationship between Pulse shooting media use and PTS. Our results found that when individuals chose to stop paying attention to mass violence media coverage, they reported using less media overall. At the same time, discontinuing behavior was then related to stronger PTS reactions. These findings are in line with previous reports following the 1993 Oklahoma City bombing and the September 11, 2001 terrorist attacks (9/11), which found that discontinuing to engage in media coverage due to fear was related to more mass violence-related PTS (Pfefferbaum et al., 2012, 2013). As discussed previously, collective trauma media coverage is often conceptualized as exhibiting a dose-response relationship, wherein using more media coverage results in more reactions. Yet our result illustrates, for some individuals, changing media behavior following a mass trauma behavior might be particularly indicative of mental health reactions related to the event. In other words, stopping media may be an additional indicator of distress experienced by the individual. In addition, our results found that discontinuing Pulse shooting media use provided a negative or inverse relationship between Pulse shooting media use and PTS. In terms of implications, mental health providers can inquire about media use and ask individuals if they have discontinued media use because of distress, and then work to identify additional ways to address the distress that also goes beyond discontinuing media use (e.g., social support, medication, therapy, activism).

### ***Limitations and future research***

As with all research, the current study has several limitations. First, this study used a cross-sectional design. Thus, without longitudinal data, we cannot be sure that the reactions we measured (emotional reactions and PTS) were entirely the result of exposure to media and not also drivers of media use and no causal inferences can be drawn. It is possible that in the case of the Orlando Pulse Nightclub Shooting, emotional reactions and PTS both resulted from and caused additional media use. That is, even though initial reactions to the PTS shooting (for those with no direct or other indirect exposure to the event) are caused by media coverage, over time it may be that PTS reactions also cause individuals to use more media in a spiraling process (see Houston et al., 2018 for a full description of this possible process). Longitudinal research on mass violence media effects is needed to better understand these effects.

Second, this study utilized a convenience sample recruited through MTurk. Because participants were not sampled with a probability design, we cannot generalize our results back to the population of U.S. adults.

With regard to using MTurk for participant recruitment, research has often found that MTurk samples are comparable to community samples in terms of personality and data quality (Hauser & Schwarz, 2016; McCredie & Morey, 2019). However, other research indicates MTurk samples might exhibit higher levels of anxiety (Engle et al., 2020), which may have implications for the current study that examines emotional and PTS reactions to media use. Additionally, we did not use any bot detection in our MTurk survey and thus we cannot be certain that all survey responses came from actual participants and not automated bots. However, our survey was conducted in 2016 and thus it preceded the time that bots became more of a problem for the MTurk platform, which was in 2018 (Moss & Litman, n.d.).

Lastly, although we examined the role of LGBTQ identity in our analysis and also controlled for race and where not able to consider the ways that these identities (and others) might intersect in explaining effects. Our sample did not include enough individuals who reported being LGBTQ and Latinx to consider the impact of intersecting identities, but future research could directly focus on the issue of intersecting identities and collective trauma media effects. This work would provide more robust and nuanced insight into the ways that social identity and social identity threat may impact collective trauma media effects.

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## Data availability statement

The data that support the findings of this study are available from the corresponding author, [JF], upon reasonable request.

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