

Effects of Therapy Dogs on Trauma-Affected Students: A Retrospective Study on Survivors of the Marjory Stoneman Douglas High School Shooting

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ABSTRACT

School shootings are traumatic events that can lead to anxiety, depression, and post-traumatic stress disorder among students who experience these events. It is important to find effective strategies to help students cope with their return to school, as well as their anxiety and stress levels while on campus. There exists a gap in the literature on the effects of therapy dogs on students who have witnessed a school shooting. This current study used a retrospective mixed-methods survey that was sent to recent graduates of Marjory Stoneman Douglas High School (located in Parkland, Florida) who witnessed the February 2018 shooting. Data were collected to assess how the therapy dogs affected students' willingness to return to school and their stress/anxiety levels while on campus. Identified themes indicated that the therapy dogs helped with anxiety levels, stress levels, and overall moods of Marjory Stoneman Douglas High School students. These findings provide important implications for community leaders and school administrators who want to promote healing and well-being in a community that has experienced violence.

KEYWORDS: Therapy dog, school shooting, community violence.

School shootings, which are mass casualty incidents that occur on school grounds, can lead students to develop depression, experience grief and PTSD, and sometimes complete suicide (Iancu et al., 2019). School-aged children who witness a mass casualty incident are likely to develop hypervigilance and a feeling of insecurity in public spaces (Garbarino et al., 2002) and are more likely to have their academic performance negatively affected (Cabral et al., 2021). Therapy dogs have been used in group settings such as schools, courtrooms, hospitals, and nursing homes to reduce a person's psychological distress and provide emotional support (Conlan, 2020). There is a gap in the literature about the effects of therapy dogs on trauma-affected youth, specifically those who have witnessed a school shooting. As school shootings remain commonplace in the United States (Carrega, 2019), it is imperative to identify best practices in caring for students' mental health in the aftermath.

This study aimed to examine the effects of therapy dogs on the students of Marjory Stoneman Douglas High School who witnessed the February 2018 shooting. The objectives of this study included understanding : (1) how the presence of therapy dogs affected students' feelings of anxiety and stress and (2) how the presence of therapy dogs affected students' willingness to come to school. Examining the effects of therapy dogs on this specific population of high school students

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can inform therapy interventions for children and adolescents who have experienced trauma, as well as school administrators and community leaders who want to promote healing in a community that has experienced violence or disaster. More broadly, the results of this study provide information about the beneficial role of therapy dogs in recovery for youth who have experienced trauma.

Literature Review

Elizabeth Kübler-Ross developed the Grief Cycle, which suggests that people experience grief in stages: denial, anger, bargaining, depression, and acceptance (Clarke, 2021). Although this cycle was originally developed in the context of a dying individual, it has since been applied to anyone experiencing grief (Stroebe et al., 2017). For those who experience a school shooting, grief can take the form of grieving lives around them and grieving the loss of safety. After a traumatic event, in addition to grief, people may experience a positive life change known as Post-traumatic Growth (PTG). PTG theory, developed by Richard Tedeschi and Lawrence Calhoun, explains how people reconceptualize a traumatic event by trying to assimilate their new reality into their existing worldview (Gangstad et al., 2009). This process is the consequence of the person attempting to survive psychologically. In the PTG model, psychological processes, such as positive reappraisal and acceptance, and social processes, such as social/religious support, are pertinent to experiencing Post-traumatic Growth. For this study, the therapy dogs brought into Marjory Stoneman Douglas High School after the shooting represent both psychological and social processes by aiding in positive reappraisal and providing emotional support.

Students who experience a school shooting are likely to suffer from post-traumatic stress symptoms, anxiety and depression, general concerns about safety (School Shootings, 2020), and grief and survivor's guilt (Iancu, 2019). Students also may suffer adverse educational outcomes and lower school attendance after the event (Levine & McKight, 2020). Due to the heightened prevalence of school shootings, active shooter drills have been implemented to prepare students and staff for a potential attack. These drills simulate a school shooting, some going as far as using simulated gunfire (National Association of School Psychologists & National Association of School Resource Officers, 2014). In a study conducted by Huskey and Connell (2021), there was a significant, positive correlation between students experiencing an active shooter drill and exhibiting high levels of fear immediately afterward.

Service dogs and therapy dogs, although terminologically used interchangeably, perform different helping tasks. Service dogs perform tasks for those with a disability, such as a guide dog or PTSD dog (Service Animals, 2011), while therapy dogs travel with their owners to volunteer in group settings such as schools or nursing homes (Pessah, 2017). Prior research found that individuals with a service dog “exhibited significantly better psychosocial health including higher social, emotional, and work/school functioning” (Rodriguez et al., 2020, p. 1350). Other researchers found that the presence of therapy dogs alleviated test anxiety among nursing students (Anderson & Brown, 2021). Barker and Dawson (1998) found that the presence of therapy dogs reduced anxiety symptoms among hospitalized psychiatric patients. While there is limited research on the effects of therapy dogs on adolescents, a therapy dog study was conducted with a group of youth sexual abuse survivors. The researchers found that the children who attended the group with therapy dogs had more positive outcomes regarding reduced trauma symptoms than the control group (Dietz et al., 2012). Therapy dogs have also been used in trauma response efforts to provide support and lift the spirits of those affected. For example, the effectiveness of therapy dogs was examined among individuals who watched a traumatic film clip (Lass-Hennemann et al., 2018). Those who interacted with the therapy dogs reported lower anxiety levels and more positive affect

than those who did not interact with the dogs. Other researchers demonstrated the psychological benefits of therapy dogs by discovering the existence of an "interspecies oxytocin-mediated positive loop facilitated and modulated by gazing" between humans and dogs (Nagasawa et al., 2015, p. 333). With this loop, human oxytocin levels are increased which regulated emotional responses and pro-social behaviors such as trust and empathy (Owens, 2021).

Methodology

A Qualtrics questionnaire was distributed electronically to former students attending Marjory Stoneman Douglas during the Parkland shooting with items relevant to school attendance after the shooting, average time per week spent with the therapy dogs, and their thoughts on the therapy dogs' effects on their stress and anxiety. Participants were recruited through snowball sampling and voluntary response sampling to a post in a Marjory Stoneman Douglas Alumni group on Facebook (Mobilizing MSD Alumni – MEMBER FORUM). Inclusion criteria included the following: participants must be over 18 years old, must have been at school during the shooting, must have returned to school in the following months, and must have interacted with the therapy dogs. This study was approved by the University of Florida Institutional Review Board. Due to the sensitivity of the topic, participants may have experienced psychological stress in recalling their experiences. If this happened, participants were given a choice not to continue the survey or were referred to the provided mental health resources (National Suicide Prevention Lifeline, Crisis Text Line, Parkland Cares).

Demographic characteristics, measured in survey format, were: age in years, sex assigned at birth (male, female), gender (man, woman, other [describe in own words]), and ethnicity (White, Hispanic or Latino, Black or African American, Native American or American Indian, Asian/Pacific Islander, Other). Participant characteristics were summarized with descriptive statistics using frequencies and central tendencies. Additionally, participants' age and grade were recorded at the time of the shooting. Close-ended questions assessed attendance changes after the shooting (decreased, stayed the same, increased, don't know) and whether the students felt that they had enough time and opportunity to see the therapy dogs (yes, no), analyzed in relation to grade level at the time of the shooting. Alumni were also asked if they felt there was enough opportunity to see the therapy dogs. Open-ended questions were administered to students in relation to the frequency and quality of student interaction with therapy dogs, perceptions of how the dogs impacted the student's willingness to return to school, and perceptions of how the dogs impacted the student's stress and anxiety. Responses to qualitative questions were coded by hand and analyzed using thematic analysis.

Limitations

The limitations of the study were the small sample size. This study focused on a specific population, so the findings may not be generalizable across high school shootings in the U.S., in which therapy dogs were introduced in the aftermath. Another limitation is the sensitivity of the topic, which could possibly lead to fewer participants and responses. Participants may have had difficulty recalling events because this was a retrospective study of an experience that occurred over two years prior. Thus, the data may have been affected by recall bias. However, this is a unique and important group of individuals who can provide pertinent information on the role of therapy dogs in promoting mental health and well-being following a traumatic school shooting.

Results

There were 36 initial responses. After inclusion criteria items were examined, 22 participants remained, and 21 participants answered the demographic and closed-ended questions (the initial sample). For the open-ended questions, 12 of the 21 participants provided written responses, herein referred to as the subsample. Of the initial sample, N=21, participants were mostly women (71%), and of the subsample, n=12, men made up 33.3%, and women made up 66.7%, as represented in Table 1.

Table 1

Gender Distribution of Participants

Gender	Initial Sample		Subsample	
	<i>f</i>	%	<i>f</i>	%
Male	6	29	4	33
Female	15	71	8	67
Total	21	100	12	100

The ethnic breakdown of the initial sample was 76% White, 14% Hispanic/Latino, 5% Asian, and 5% Other. In the subsample, 67% of participants were White, 25% were Hispanic/Latino, and 8% identified as Other, as presented in Table 2. According to the Broward County Public Schools website (n.d.), the current ethnic breakdown of Marjory Stoneman Douglas High School is 75% White, 27% Hispanic/Latino, 12% Black, 8% Asian, and 5% Other, showing that the ethnic breakdown of the study sample is similar to that of the population, though not completely representative.

Table 2

Ethnicity Distribution of Participants

Ethnicity	Initial Sample		Subsample	
	<i>f</i>	%	<i>f</i>	%
White	16	76	8	67
Hispanic/Latino	3	14	3	25
Asian	1	5	0	0
Other	1	5	1	8
Total	21	100	12	100

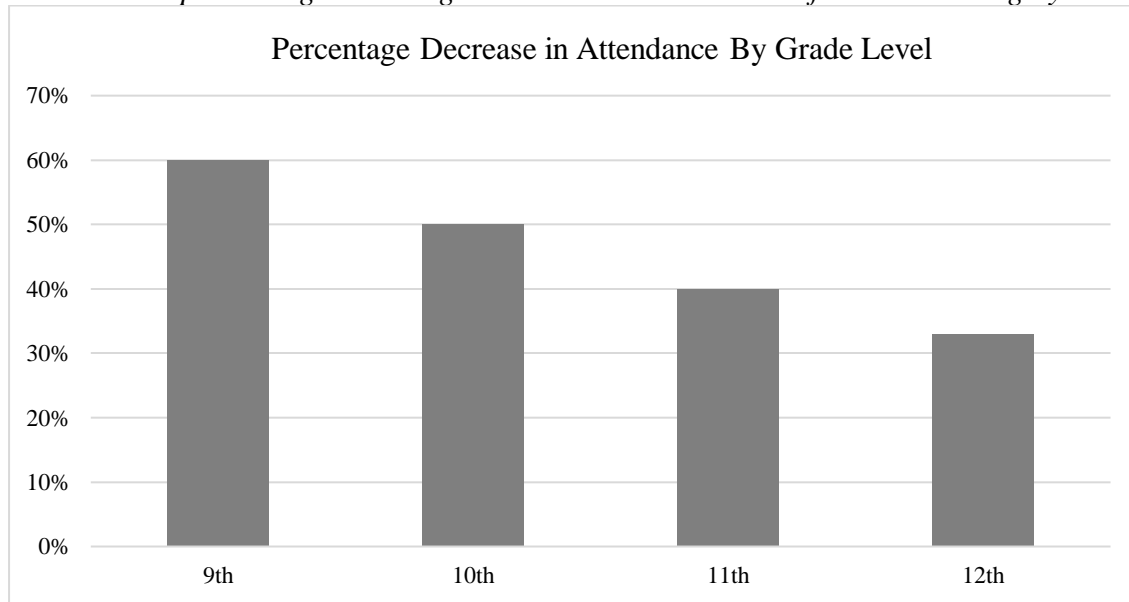
The breakdown of the Grade at the Time of the Shooting of the initial sample is 24% ninth grade, 9% tenth grade, 24% eleventh grade, and 43% twelfth grade. For the subsample, the Grade at the Time of the Shooting is 33% ninth grade, 8% tenth grade, 25% eleventh grade, and 33% twelfth grade, as represented in Table 3.

Table 3
Grade Distribution of Participants at Time of Shooting

Grade	Initial Sample		Subsample	
	<i>f</i>	%	<i>f</i>	%
9th	5	24	4	33
10th	2	9	1	8
11th	5	24	3	25
12th	9	43	4	33
Total	21	100	12	100

Of the 21 participants who responded to the question about attendance (How was your attendance affected after February 14, 2018?), nine said their attendance decreased after the shooting, and 12 said their attendance stayed the same. None of the participants said that their attendance increased. The greatest discrepancy in attendance was evidenced by grade level at the time of the shooting, as represented in Figure 1. For ninth-graders, 60% reported their attendance decreased, whereas for twelfth-graders, 33% reported that their attendance decreased.

Figure 1
Bar Chart Representing Percentage Decrease in Attendance After the Shooting by Grade Level



Qualitative Analysis

The subsample, n = 12, completed qualitative questions related to the frequency of therapy dog interaction, type of therapy dog interaction, their feelings during therapy dog interaction, as well as how they felt the dogs affected the following mental health and wellbeing items: anxiety levels; stress levels; and their willingness to come to school. Seven participants interacted with the

therapy dogs in their classrooms and at lunch, where the therapy dogs and their handlers would sit in the courtyard, a centralized location on campus. Therapy dogs were also present in the library and the grief counselors' offices. Participants' answers regarding the time spent with the dogs ranged from 3 minutes to 30 minutes per session, with sessions occurring one to three times a day. The therapy dog program lasted from February 2018 to June 2021, when the last students to witness the shooting graduated. The themes in the written responses regarding feelings during therapy dog interaction were *Calm/Relaxed* (n=7 participants mentioned), *Happy* (n=6), *Safety* (n=2), and *Relief* (n=1). One student noted that the therapy dogs provided her a sense of relief from the stress of attending school after the shooting, explaining that "they were one of the main reasons I felt okay coming back." Another student stated that even when they were not personally interacting with the dogs, the student stated that it was "relaxing to see them around and see them helping my peers." One student stated that the dogs "brought more normalcy" to the school during the aftermath of the shooting.

Six participants of the 12 who provided written responses specifically stated that the therapy dogs lowered their anxiety, although one clarified that this change in anxiety was temporary and, upon leaving the dogs, would return to the same level as before. Two students addressed how the presence of the therapy dogs helped them feel like they could return to and stay at school. One participant noted that although the school had counselors, she felt like the therapy dogs were the "only thing that helped." The therapy dogs served as a distraction for one participant, who attributed the dogs' presence to a friendlier environment and helped her "not think about the bad things." Two participants stated that the dogs' presence did not affect their anxiety, with one stating that "sounds would still trigger me, and the dogs usually weren't around when I got freaked out."

Ten participants answered the following question: Describe how the therapy dogs impacted your stress levels while at school, if at all. Six of the ten participants who provided written responses indicated that the therapy dogs lowered their stress levels. One student noted that the dogs were a good distraction in a stressful situation, and another noted that they brought happiness into an otherwise tough situation. Three students believed that the therapy dogs did not affect their stress levels, one stating "not at all," another stating "not much," and the last stating "barely affected."

Twelve participants answered the following question: Describe how the therapy dogs impacted your willingness to return to school, if at all. Three participants indicated that the dogs eased the return to school. Two of those students stated that the therapy dogs made them want to go back to school, while one said the dogs influenced their attendance favorably. Three students stated that the therapy dogs were the main reason, or one of the main reasons, for their return. Participants also noted in the additional comments section that not having the dogs "would have made the return so much more difficult," and they "definitely helped" the return to school. Both of these participants also noted that the dog handlers positively contributed to their experience returning to school. One student said that the therapy dogs made returning to school "a little easier because the overall environment became better." Five students said that the therapy dogs did not impact their willingness to return to school, although a participant stated that it was a nice bonus to have them on campus.

Discussion

This research suggests the following conclusions pertaining to the effects of therapy dogs on youth who witnessed a school shooting. The discussion is organized by research objective.

How Therapy Dogs Affected Wellbeing

Objective one was to understand how the presence of therapy dogs affected students' feelings of anxiety and stress. This objective was addressed with three qualitative questions. The therapy dogs did serve as a distraction in a stressful environment, which contributed to lower anxiety and stress levels among participants. Although the therapy dogs helped lower anxiety levels during the interaction, one student noted that they were not always accessible and therefore did not help anxiety levels long-term. The third question asked about stress levels. Based on participants' responses to this question, the therapy dogs did comfort students and reduce student stress levels, as well as contribute to happiness and distraction from the stressful environment. It is important to note that some participants felt that the therapy dogs did not have a significant impact on their stress levels, although it is unknown whether there were confounding variables that contributed to these answers.

How Therapy Dogs Affected Motivation to Return to School

The second objective was to understand whether and how the presence of therapy dogs affected the participants' willingness to return to school. This objective was addressed with one qualitative question, as well as an analysis of attendance by grade level. Based on open-ended responses to this question, the therapy dogs eased the return to school and affected some students' attendance favorably. The therapy dogs impacted most students, as many responses credited the therapy dogs as their main reason for returning to school, stating that the return would have been much more difficult without them. Conversely, some students stated that although the presence of the therapy dogs was nice, they did not have an impact on them. An important thing to note is the discrepancy between grade level and willingness to return to school. As grade level increased, so did the willingness to come to school, likely unrelated to the presence of therapy dogs. One possible reason for this discrepancy is the difference in emotional relationships with both the school and classmates. Those who were freshmen when the shooting occurred may not have had as strong an emotional tie to the school community as seniors. Another possible reason for the discrepancy is the important events associated with one's senior year of high school, such as prom and graduation. Students who were seniors at the time of the shooting likely placed value on these high school milestones and were more willing to return to school in an attempt to regain normalcy. School administrators who bring in therapy dogs in the wake of a tragedy should consider having easy accessibility to the therapy dogs and checking in with students periodically to ask if the therapy dogs meet the students' needs. School administrators should also consider providing students with various mental health resources, such as grief counselors and access to group therapy, and not rely on a singular method to reach diverse students.

Conclusion

Based on this study alone, we cannot conclude that therapy dogs were a major factor in students' willingness to return to school in the wake of the shooting. However, even with the study's small sample size, the therapy dogs seemed to positively affect anxiety levels, stress levels, and overall moods of Marjory Stoneman Douglas High School students who survived the shooting and responded to the survey.

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The authors have no conflicts of interest to disclose.

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