In Their Own Words: Faculty/Staff and Student Accounts of Stress at Virginia Tech on
April 16, 2007

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Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State
University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
In
Sociology

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July 24, 2017
Blacksburg, Virginia

Keywords: Stress; Trauma; April 16, 2007; Virginia Tech; Probable PTSD; DSM-5;
DSM-IV-TR; Criterion A

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ABSTRACT

This study examines the stressful responses of faculty/staff and students after experiencing the April 16, 2007 school shootings at Virginia Tech. Understanding people's responses to trauma not only assists in more knowledge about what is stressful after a traumatic event but also may facilitate the finessing of tools and strategies for resilience and recovery in the aftermath of trauma. After investigating stressful responses to the April 16, 2007 shootings at Virginia Tech, and in particular those with probable PTSD (posttraumatic stress disorder), I found it was not always necessary to meet the "stressor" A criterion of PTSD. This is crucial because the "stressor" criterion A of PTSD is required to receive the diagnosis of PTSD. Although I found subtle stress differences for women compared to men, and faculty/staff compared to students, none of the differences were statistically significant. This research additionally contributes to the literature by detailing a profile of stressors for both faculty/staff and students in the aftermath of the worst college campus shooting in U.S. history to date. Findings suggest future research should examine the "stressor" criterion A of PTSD as well as the full spectrum of stressful responses both in the "immediate" and "delayed" aftermath of trauma(s).

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GENERAL AUDIENCE ABSTRACT

This study looks at responses of stress for faculty/staff and students after being exposed to the April 16, 2007 school shootings at Virginia Tech. Understanding responses to trauma not only provides more knowledge about what is stressful after a traumatic event, it may help us to learn and better fine-tune ways for recovery in the aftermath of trauma. After investigating these stressful responses to the April 16, 2007 shootings at Virginia Tech, and in particular those likely to go on to develop PTSD (posttraumatic stress disorder), I found that it was not always necessary to meet the "stressor" criterion A of PTSD. This is important because the "stressor" criterion A of PTSD is required to receive the PTSD diagnosis. Although I found some interesting differences in stressors for women compared to men, and faculty/staff compared to students, none of the differences were significant statistically. This work also contributes to research by detailing a profile of stressors for both faculty/staff and students in the aftermath of the worst college campus shooting in U.S. history to date. Findings suggest the need to continue to examine criterion A of PTSD as well as the full range of stressful responses both during, and in the aftermath of, trauma(s).

DEDICATION

For *years* I have thought about how, and what, to write in this dedication. Finally faced with this privilege, words fail me. Part of what has carried me through this journey has been the love and support of God, family, friends, and colleagues. But, part of my ability to persevere in this project has also been the belief that I owe this work to those who do not have choice or say to do a project like this. I do not believe I will ever be able to say exactly what I want to say, or, whether I will know how to say what I truly feel. While I do not regret working on this project, it has been a series of humbling struggles and challenges.

This dissertation is dedicated to each and **every** individual trauma victim and trauma survivor, as well as those who have collectively suffered. In particular, this work is dedicated to those victimized, those who survived (and continue to survive), and the families, friends, individuals, and communities impacted by the events of April 16, 2007 at Virginia Tech and beyond.

It is my sincere hope and belief that one day our society will not only learn how to lessen traumas but also to help those remaining in the aftermath of trauma.

ACKNOWLEDGEMENTS

From the beginning, my decision to undertake this dissertation project was a struggle and a challenge. I felt personally unworthy to examine this topic, guilty for wanting to explore the subject of this topic, and, personally vulnerable.

I was a student at Virginia Tech on April 16, 2007. I experienced a myriad of stressors in response to this traumatic event. I still have a difficult time with that day, and, with peering into the experiences of others and their experiences of that day. But, after many, many, *many* starts and stops it eventually became evident that I *should* continue this project and investigation. It is only because of divine intervention and inspiration as well as support from family, various communities, and academic resources and privileges that I have been able to get to this stage.

It took, and still takes, a village—I'm thankful for all who have helped me reach this point in my life:

First and foremost I thank God. Without His intervention, inspiration, and placing persons and circumstances in my life including people and opportunities I have had along the way, the desire and help that has pushed me to keep going, and the privileges and opportunities to be able to continue this project, I would <u>never</u> have made it to this stage.

I thank my entire family (in the USA and abroad). In particular, I would like to thank my parents, Michael J. and Paula A. McLeese, my sisters Lucille and Paula, and my great aunt Isabel Tecovic. I also thank my husband, Charles, and our beautiful children. Without their constant love, support, prayers, help, and encouragement, I could never have continued with such a monumental and challenging project. I **LOVE** you all so very much. Thank you! Gracias!

I also wish to thank all of the friends and people I have met in my academic journey toward the PhD including my church communities in Virginia, Kentucky, and abroad. There are far too many to thank individually—I met so many along my (longer than expected PhD) journey to this point. All of you have had such an impact on my life journey and you're so very special to me. Thank you for your prayers, your love, and your support.

Thank you to my dissertation committee especially to my advisor and chair, Dr. Michael Hughes, and Dr. Sarah Ovink—who has worked as a co-advisor without the title. You both have been so immensely patient and helpful and I very much appreciate ALL you have done for me. Thank you to my remaining committee members: Dr. Stacy Vogt Yuan, Dr. Donald Shoemaker, and Dr. Russell Jones—your comments, encouragement, and flexibility in schedule were helpful and appreciated!

Thank you to my graduate colleagues and friends in the Sociology Department at Virginia Tech including faculty and all the Sociology department staff who were not on my dissertation committee (especially Brenda Husser), those colleagues I met and got to

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—**Chapter 1 INTRODUCTION**

On Monday morning, April 16, 2007, a lone gunman shot and killed 32 students and faculty, shot 17 others who survived, and then killed himself on the Virginia Polytechnic Institute and State University (Virginia Tech) campus in Blacksburg, Virginia. This was the worst college campus shooting to date in American history. In this project I focus on these two campus shootings at Virginia Tech on April 16, 2007.

Research shows that as stress exposures increase so too does emotional distress (Aneshensel and Phelan 1999). Research also links traumatic events like the Virginia Tech shootings as likely to lead to a variety of reactions, including posttraumatic stress, and, an increase in chances of posttraumatic stress disorder (PTSD). However, the majority of those exposed to a variety of stressors including those of a traumatic orientation do not develop any mental disorders or illness (Aneshensel and Phelan 1999; Bonanno 2004).

While a diagnosis of posttraumatic stress disorder (PTSD) requires an individual experience a traumatic event, some research indicates that individuals can experience a high level of posttraumatic stress without directly experiencing a traumatic event (Schuster et al. 2001; Silver et al. 2002; Zimering et al. 2006). Research has tended to examine criterion B (re-experiencing), C avoidance/numbing), or D (hyper-arousal) of PTSD (see for example Creamer 1990; North, Smith, and Spitznagel 1997; McMillen, North, and Smith 2000; North et al. 2002; Johnson, North, and Smith 2002) but has spent less time examining what qualifies as traumatic, or, the role of the "stressor" criterion A of PTSD. (For exceptions see Brewin, Andrews, and Rose 2000; Weathers and Keane 2007; Kubany, Ralson, and Hill 2010; Lancaster, Melka, and Rodriguez 2011; Pereda and

Forero 2012). We do not presently know why some individuals go on to develop disorders while others do not. We do, however, have evidence that indicates exposures(s) to trauma increase "adverse emotional, cognitive, behavioral, and physical health outcomes" (Wilson 2017:191). More investigation, however, is needed regarding direct and indirect exposures to trauma, subjective responses of stress due to trauma(s), and the connection between criterion A of PTSD and the experience of trauma. Examining these constructs will facilitative a better understanding of experiences, conditions, or emotions that lead to stress in general, and, to posttraumatic stress disorder (PTSD) specifically.

Sociology investigates social patterns and forces in society and their impact on individuals' behaviors (Weiss and Lonnquist 2009). The sociology of mental health specifically investigates mental disorders and mental health as being influenced by external factors in an individual's environment or social context; disorders result from breakdowns due to "overwhelming environmental stress" (Thoits 1999:121). Stress does not directly "cause" mental illness but stress exposure(s) appear to increase the risk of mental illness (Aneshensel and Phelan 1999:211). Exploring what respondents consider stressful in their environments may yield new insights between those with probable PTSD and those without. Psychology and psychiatry, on the other hand, assume individuals' disorders result from abnormal internal experiences or causes in the mind or psyche (Thoits 1999). Examining stress as put forth by criterion A of PTSD from DSM-IV-TR (2000) and DSM-5 (2013) may also garner new insights. By including both psychological and sociological concepts to explore and diagram respondents' stress accounts, as well as examine whether, and how, respondents' stress accounts match

criterion A of PTSD (DSM-IV-TR and DSM-5), this project attempts to increase needed attention on this understudied topic.

Using data from an online survey administered to Virginia Tech faculty/staff and students three months after the shootings, I examine quantitative and qualitative measures of stress to better understand what respondents' perceived as stressful about the shootings that day. Not only is this important because we do not know what all is stressful about traumatic events but also because we especially do not know what is stressful about mass shootings (Wilson 2017). Knowing more about what is stressful may inform researchers and practitioners working to help those left in the aftermath of such trauma.

Furthermore, this survey includes qualitative data from an open-ended question asking respondents to report what was "most stressful" for them on April 16, 2007. Quantitative measures include close-ended measures assessing probable PTSD and various measures of stress specifically Criterion A from the Diagnostic and Statistical Manual of Mental Disorders, versions DSM IV-TR (2000) and DSM-5 (2013). Although DSM-5 (2013) is the current manual used in psychiatry, I examine both manuals because criterion A has evolved from DSM-IV-TR (2000) to DSM-5 (2013).

Research questions examine whether an individual needs to directly experience a traumatic event to go on to develop symptoms of probable PTSD and whether those who indirectly experience a traumatic event also go on to develop symptoms of probable PTSD. Finally, questions regarding sex and age/role differences in expressions of stress, responses to stress, and probable PTSD are examined.

Research Questions

Q1. What are the general stressful responses/reactions of faculty/staff and students after experiencing the shootings of April 16, 2007 at Virginia Tech?

Q2. Is criterion A (A, A1, A2) necessary for a diagnosis of probable PTSD?

Q3. If criterion A was not necessary for a diagnosis of probable PTSD in all cases, what stressful experiences/responses/reactions (not conforming to criterion A) was linked to probable PTSD? How do they compare to the general responses?

Q4. How do the processes linking experiences and reactions to probable PTSD differ for men and women?

Q5. How do the processes linking experiences and reactions to probable PTSD differ for younger (students) and older (faculty/staff) respondents?

This research project addresses several gaps in the literature in three ways. First, the full range of stressful responses, direct and indirect, of faculty/staff and students are examined. Second, this project specifically examines criterion A of PTSD (DSM-IV-TR and DSM-5) and those who experienced probable PTSD after the April 16, 2007 shootings. Third, the project examined how stressful responses differed by sex and age/role. These lines of inquiry are important because recent research does not tend to investigate the full range of stressful responses. In addition, most investigations of trauma assume criterion A has been met when an individual experiences a traumatic event. Finally, examining both direct and indirect exposures to trauma are important since both types of exposures may lead to probable PTSD or other stress (Zimering et al. 2006; Silver 2011; Tierens et al. 2012). Because research is not always consistent regarding sex and age differences in stress and PTSD, I examine whether stress responses vary by sex and age.

Outline of Project/Study

In Chapter 2, I review the literature on stress, traumatic stress, distress, and reactions/responses to traumatic events specifically. Then, I review PTSD, criterion A, and sex/gender as well as age differences in PTSD diagnoses. In Chapter 3, I provide the

methodological description and details of my study including the dataset, measures, and analytical processes utilized. Chapter 4 includes a detailed description of the qualitative stressful responses as well as more specifics about the Virginia Tech shootings, and a timeline and descriptions of events as they unfolded on Monday April 16, 2007. In Chapter 5, I detail the qualitative analyses and description of the codes, categories and themes found in the open-ended responses to what was most stressful. In Chapter 6, I detail the quantitative analyses and description of closed-ended measures and include the major findings of my study. Finally in Chapter 7, I review the conclusions, discuss the implications of my findings, include the limitations of my research, and address future research suggestions.

—**Chapter 2 LITERATURE REVIEW**

This chapter reviews the literature on stress, and in particular traumatic stress before moving to a general understanding of posttraumatic stress disorder (hereafter referred to as PTSD). Next, I review literature on criterion A of PTSD from DSM-IV (2000) and DSM-5 (2013). Then, I examine the literature on responses to traumatic stress, PTSD, and the relationship to sex and age. Finally, I include the research questions examined in this project.

Stress, Stressors, and Stress Reactions

In the mental health literature, our understanding of stress, stressors, and reactions to stress have come a long way since first examined more than 50 years ago (Thoits 2010). For example, Selye, an endocrinologist, was the first to use "stress" to refer to "unpleasant environmental events and the physiological reactions" to those events (Thoits 2010:S49). Stress or stressors are recognized as different from stress responses or reactions because "people often use the term 'stress' ambiguously" (Thoits 1999:125). To remedy the ambiguity, stress or stressors are operationalized as "environmental demands" that require an adjustment of behavior whereas stress reactions/stress responses are defined as "physiological or emotional responses" to those demands (Thoits 2010:S49). Stressors can also have both negative and positive effects (Pearlin et al. 1981; Pearlin 1989; Pearlin, Avison, and Fazio 2008). However, negative events and experiences, compared to positive ones, are more strongly connected to poorer physical and mental health outcomes (Thoits 2010).

Stress proliferation is important but often "overlooked" (Pearlin 1999:403). Stress proliferation occurs when one stressor leads to another stressor (Pearlin 1999)

through a process of expansion—much like the ripples extending outward that result from a stone being thrown into a body of water (Thoits 2010). Cumulative stress is the creation of additional stressors on top of existing stressors. It is now believed that those accumulating stressors over time are at increased risk of poorer mental health outcomes than those experiencing stressful events occasionally, or, with significant time between events (Thoits 2010). As a consequence of the research conducted over the last half century, we now know that negative events, stressors, and strains (both chronic or ongoing stressors/strains as well as multiple acute strains with little to no time in between, and traumas) "together explain far more variance in mental health outcomes than negative events alone" (Thoits 2010:S43).

Much like stressors are distinct from stress reactions, Horwitz (2007a) advocates for distinguishing between the concepts of distress and disorder arguing that distress is often a "natural response of non-disordered people to oppressive and disturbing circumstances" (326) while disorder "exists when some psychological mechanism is *not* working appropriately" (321, *emphasis original*). In other words, distress occurs when individuals who are not disordered encounter stressful situations and respond normally to those responses, while disorder occurs when an individual experiencing the same stressful event, responds or reacts with psychological dysfunction (Horwitz 2007b). Horwitz (2007a, 2007b) argues that despite the fact that mental disorder and distress are separate constructs they are nonetheless often used interchangeably and should not be. This is an especially important point to keep in mind, he argues, because such conflation misses the opportunity for sociologists of mental health to uncover the variety of responses and reactions to stressful events (both disordered and non-disordered ones) and

may ultimately lead to the "medicalization of life problems" beyond that which we already see in the medical profession (Horwitz 2007a:325). Furthermore, other authors have pointed out that exposure to trauma has sometimes been assumed to automatically lead to posttraumatic stress and other disorders. This is also problematic not only because it may mean normal responses are being medicalized but also that normal responses of stress and distress are not well understood in general.

Trauma, Traumatic Stress, and Traumatic Reactions

A specific type of stress includes traumatic stress. In the 1970s and 1980s feminists and war veterans advocated for traumas experienced during sexual assaults and/or rapes, and traumas experienced during combat in war, be considered social problems with consequences affecting individuals rather than individual psychological problems (DeGloma 2009). Traumas represent "extreme threats to a person's physical or psychological well-being" including but not limited to exposures to combat, sexual assault, natural disasters, and seeing violent events (Thoits 2010:S43). Trauma varies; it entails "private" experiences such as abuse or assault but also includes sudden, unexpected events such as terrorist attacks (Galea et al. 2002), mass shootings, and technological disasters (Littleton, Axsom, and Grills-Taquechel 2009:206). Natural disasters can also have deleterious effects on individuals exposed to them (Galea et al. 2007). Traumas can happen to anyone at any time. After exposure to trauma, some individuals go on to develop PTSD. In fact, in order to receive a diagnosis of PTSD an individual is required to have experienced a traumatic event.

Although literature on trauma, traumatic stress, posttraumatic stress, and posttraumatic stress disorder has shown significant progress in the last few decades,

questions remain. Two inter-connected areas that continue to pose many questions revolve around definitions of trauma and responses to trauma. Around definitions of trauma are issues over what qualifies as traumatic, who is more likely to experience trauma, and what kinds of exposures lead to disorders. Responses to trauma are also varied making it difficult to know whether types of trauma, meanings attached to those traumas, emotions, or other factors are partially responsible for some suffering from disorders like PTSD while others do not. Below I address some of these challenges in more depth.

Definitions of Trauma

Many researchers examine trauma as set forth by the psychiatric community especially via the DSM (diagnostic and statistical manual of mental disorders). However, other scholars argue that trauma should not be defined so specifically, or by a checklist, because traumatic experiences can vary by population, personal background, and type of event experienced (Paton, Crouch, and Camic 2009; Bonanno and Mancini 2012). Added to this, there are some in the field who worry too much emphasis or attention has been paid exclusively to PTSD. In fact, much of the research on trauma is in some way connected to PTSD likelihood or outcomes.

Although ample research points to PTSD as being precipitated by traumatic stressors (Young 1995; Weathers and Keane 2007; Friedman et al. 2011), some studies have also found that individuals who experience stressful life events have similar PTSD symptoms as those who experience traumatic events (Robinson and Larson 2010). For example, after examining three groups who in the last year experienced traumatic events; significant stressful life events; or both traumatic events and stressful life events,

Robinson and Larson (2010) found all three groups experienced similar amounts of PTSD (71). This finding suggests the need to investigate what constitutes a traumatic event and/or whether symptoms of PTSD may apply beyond traumatic events to a variety of life stressors (Robinson and Larson 2010:71).

According to Paton et al. (2009) trauma is typically assumed to refer to, or be associated with, psychiatric diagnoses especially PTSD, but this is problematic because PTSD does not always account for the complexity of people's responses "to overwhelming experiences" (45). For example, Paton and colleagues (2009) examined young offenders experiencing a range of traumatic life events including physical and/or sexual abuse, living in poverty, and living in violent communities. Rather than use trauma in the "psychiatric" sense, they defined trauma as a "way of describing a range of experiences" that had lasting impacts for the individuals they interviewed (45). In other words, they wanted to examine trauma and traumatic events without having to justify the examination of trauma through connections to PTSD.

Meewisse et al. (2011), while encouraging researchers to examine PTSD post disaster, also caution against sole focus on PTSD, citing it is also possible for victims of traumatic events to develop phobias and depressive symptoms or disorders. Summerfield (2001) also raises concerns and criticisms with the existence and expansion of "trauma criteria" for PTSD. While discussing the historical and political underpinnings of PTSD, Summerfield (2001) makes a case for re-examining PTSD—not to discount or take away resources or awareness of real cases but to re-evaluate how the diagnosis is made—and attempt to learn more about PTSD and what makes something "traumatic" and worthy of the label.

Trauma Type

  Aside from trauma definitions per se, the type of traumatic event experienced is sometimes considered important in trauma literature (Kelley et al. 2009; Luz et al. 2011). For example, Kelley et al. (2009) found different traumas (specifically sexual assault, sudden unexpected death, and motor vehicle accident) can lead to different PTSD symptoms, which may mean a need for different treatments (227). However, Luz et al. (2011) in their review found war trauma, motor vehicle accidents, and child abuse the three most commonly reported traumatic events; consequently, they argue for more standardization of traumatic events since different traumatic events are believed to be associated with different risks of developing PTSD (244).

  On the other hand, some studies find type of trauma is not the most salient factor in PTSD symptoms (Carlier and Gersons 1997; Briere and Elliott 2000; Norris, Friedman, and Watson 2002b; Wahlstrom et al. 2008). Briere and Elliott (2000), for example, found physical injury, fear of death, and property loss to be better predictors of symptomatology than type of disaster when examining research on environmental, technological, and man-made disasters. Likewise, Wahlstrom et al. (2008) found physical injury, life threat, and bereavement associated with distress and morbidity. But, 14 months after the 2004 Indian Ocean Tsunami, only life threat was "associated with different levels of psychological distress and posttraumatic stress" among survivors (Wahlstrom et al. 2008:466). Both single and multiple exposures "were associated with different levels of psychological distress and posttraumatic stress a little over a year after the tsunami" (Wahlstrom et al. 2008:465). Along the same theme, Carlier and Gersons (1997) found PTSD was strongly related to material damage and loss when they looked at

posttraumatic symptoms of victims of the 1992 Netherlands Bijlmermeer plane crash six months post disaster (329).

In their review of respondents experiencing traumatic events, Norris et al. (2002b), found samples experiencing mass violence were "far more likely than other samples to be severely or very severely impaired" (244). In particular, effects were greatest if disasters caused at least two of the following: 1) extreme and widespread property damage, 2) the community experienced serious and ongoing financial problems as a result of the event, 3) the disaster was the result of human intent, and 4) the impact was associated with a high prevalence of injuries, threat to life, and loss of life (Norris et al. 2002b:246).

Indirect Traumatic Exposure(s)

Defining trauma also depends on whether respondents were directly or indirectly exposed to traumatic events or experiences (Classen et al. 1998; Curry 2003). In particular, a diagnosis of PTSD requires a direct exposure to trauma and few exceptions for indirect exposure(s). Classen et al. (1998), for example, found bystanders (indirect exposure) to an office building mass shooting predicted later posttraumatic stress symptoms. More specifically "three of the four symptoms included in the acute stress disorder diagnosis (dissociation, re-experiencing the traumatic event, avoidance) and the overall diagnosis of acute disorder were strongly related to the frequency of experiencing PTSD symptoms (Classen et al. 1998:623).

After the 1998 Thurston High School shooting, Curry (2003) looked at the immediate and longitudinal posttraumatic effects of violence on students to see if there was a relationship between physical proximity, emotional proximity, and peritrauma

responses (95). Not only were students more likely to suffer higher peritrauma responses the closer they were to the shooting, those emotionally connected to the school (even if they were not physically on campus at the time of the shooting) also showed elevated peritrauma responses. Curry (2003) found that students in the "vicinity of the shootings" reported feeling "more distressed from hyper arousal and avoidance" than those 2-3 years after, and, students reported "experiencing higher levels of difficulty describing and expressing emotions" (Curry 2003:111). Students physically on campus also reported elevated distress related to intrusion, avoidance, and hyper arousal two and three years after the shootings. Although both groups of students were in physically different locations (one group was proximally closer to the actual shootings than the other group), both groups of students "were held in rooms, sometimes with the lights out, not knowing if there were more perpetrators on the premises. They could not contact their friends or families, they didn't know who was hurt or the extent of the violence, and some of them had no idea about the identification of the weapon wielding perpetrator" (Curry 2003:112). These findings point to the importance of considering "emotional connections" as well as physical location (Curry 2003:s115) and may help to explain why those not present at the site (or close to) a traumatic event may also experience significant distress from an event.

Role of Media

Exposure to media portrayals of violent events (including reports of school shootings) have also been examined to try to better understand what impacts, if any, result after traumatic events. Fallahi et al. (2009), for example, in an attempt to learn of the reactions of students, faculty, and staff at a school in Connecticut following the

Virginia Tech (VT) shootings, argued that it is important to research violent events "to better understand the ways in which school violence affects college students, faculty, and administrative staff" (121). Surveying respondents three weeks after the VT shootings about perceptions of the VT shooting, media exposure, and school violence in general, the authors found indirect exposure via media led to vicarious traumatization—that is, one can experience symptoms of stress without being present for the traumatic event through media consumption (122). Those with more, and longer, media exposure were more likely to exhibit more PTSD symptoms and aggression. Another study done by Fallahi et al. (2009) also interested in whether exposure of the Virginia Tech school shootings would increase symptoms of acute stress in students at another university "who were not personally involved but who followed the case vicariously through news media" found that as television viewing increased, the "probability that a student would respond with moderate or acute stress symptoms also increased" (220). Stress symptoms included intrusive thoughts, sleep disturbances, distraction, fear, stomach upset, depression, disorganization, replaying of the event, and anger (Fallahi et al. 2009:227). This study begs further attention to those exposed indirectly to traumatic events via media.

Similarly, Schuster et al. (2001), in their study immediately following the September 11, 2001 terrorist attacks, found that "extensive television viewing" led to substantial stress reactions (1509). For some people, especially children, the constant repeat of "terrifying images" on television may have served "as a traumatic reminder" leading to stressful reactions and responses (1511). Furthermore, it's possible that "September 11 made Americans realize that the United States is vulnerable to attack on a scale that few had thought possible" (Schuster et al. 2001:1512).

Not only is media consumption a cause of concern for some, others (Hawkins et al. 2004) argue that there is a need to investigate "the consequences of heavy media involvement in the aftermath of sensational trauma" because, "[a]lthough the media provided help early in the process to those most directly involved in the trauma, [they] quickly became a significant problem" (220). Palinkas et al. (2004), in their study on the San Diego East County school shootings, also echo the need for examining the role of media because about half of the respondents they interviewed were "critical of the media's handling of the two shootings and the aftermath" (117). In particular, respondents were critical of media's quick attempt to intrude on sorrow, portray the community negatively, and accept theories without verification. These studies reinforce how trauma is defined including type of exposures to trauma are important and still understudied.

Responses to Trauma

Van der Kolk and McFarlane (1996) argue traumatic events are traumatic because individuals deem them to be by "how threatened and helpless they feel" making the meanings individuals attach to traumatic events as important as having experienced the event (6). The meanings attached to traumas are less explored or known because of the emphasis on whether individuals qualify for serious disorders such as PTSD. In addition, Van der Kolk and McFarlane (1996) argue, "focusing solely on PTSD to describe what victims suffer from does not do justice to the complexity of what actually ails them" and that "excessive attention to intrusion/numbing/arousal phenomena of PTSD may severely limit observations of how people react to trauma, and may interfere with appropriate treatment" (Van der Kolk and McFarlane 1996:16-17).

Bonanno and Mancini (2012) agree PTSD has focused almost exclusively on average responses to traumatic events (usually with diagnostic scales) and instead advocate for more focus on a diversity of responses to potential traumatic events because most people are resilient to, recover, or otherwise function well compared to the minority of those who exhibit dysfunction, pathology, or problem(s). This is important because it means that for the majority of individuals who do not end up with a diagnosis of PTSD, we know very little about how they fare and what their responses or reactions are.

Responses Not Conforming to PTSD

Norris et al. (2001a), in their qualitative study, focused on the responses of a small sample of Mexicans to disasters in several places; the authors were interested in assessing "the extent to which symptom descriptions corresponded to the 17 criterion symptoms of PTSD" (741). Most often described were hyper-vigilance, event-related distress, recurrent recollections, and avoiding reminders, however, three (foreshortened future, startle response, and concentration problems) were never described (Norris et al. 2001a:750). In addition 109 separate expressions that "could not be classified specifically as criterion symptoms" were also identified (741).

In another study, Schuster et al. (2001) interviewed a random sample of individuals 3-5 days after the U.S. September 11, 2001 terrorist attacks to learn more about their reactions to the attacks. In particular they were interested in "trauma-related symptoms of stress in people who do not necessarily meet criteria for a psychiatric disorder" because it has been understudied (Schuster et al. 2001:1511). They found Americans all across the U.S. (including children) had "substantial" stress symptoms (1507). Stress reactions varied significantly "according to sex, race or ethnic group,

presence or absence of prior emotional or mental health problems, distance from the World Trade Center, and region of the country" (1509).

Reactions of First Responders

Some studies have also examined the responses of rescue workers, volunteers, or first responders called in after a disaster or traumatic event since they tend to have more frequent and chronic exposures to traumas (Fullerton et al. 1992; Dyregrov, Kristoffersen, and Gjestad 1996; Golden, Jones, and Donlon 2014). For instance, Fullerton et al. (1992) identified four types of response when looking at rescue workers, specifically fire fighters, who experienced a mass casualty air disaster rescue in Sioux City, Iowa. The four dimensions of response included 1) identification with victims and dead, 2) experiencing helplessness and guilt, 3) fear of the unknown, and 4) physiological reactions (e.g., trouble sleeping, nightmares, exhaustion).

In another study, Dyregrov et al. (1996) looked at a bus accident that led to the death of 12 children and four adults in Norway in 1988 and responses of the volunteer and professional helpers in the aftermath of the accident. Volunteers included Red Cross and fire brigade volunteers. Professionals included police, fire, and health personnel. More than 50% of voluntary helpers and professional helpers experienced negative reactions including irritation at the media, helplessness, hopelessness, and others (Dyregrov et al. 1996). Additionally, more than one third of both groups experienced unreality at the disaster scene and almost as many were frustrated by waiting (Dyregrov et al. 1996:545). Voluntary helpers reported more reactions than professional helpers and this could be due to the fact that professional helpers have had more experience and exposure on average. More voluntary helpers had difficulties talking about their

experiences but both groups had similar types, and strength of, reactions. Voluntary helpers and professional helpers also differed in experience with traumatic accidents/incidents.

In their case study, Golden et al. (2014) presented the case of an emergency first responder to the April 16, 2007 shootings at Virginia Tech. "Jack" (the pseudonym selected for the case subject) reported having seen "hundreds" of deaths in his career as a first responder and did not know any of the individuals killed in the shootings (3). Nevertheless, "Jack" found the "sheer number of people killed" in tandem with his "difficulty understanding the reason for their deaths" made these shootings the "most traumatic event he had ever experienced" (Golden et al. 2014:3).

Multi-dimensional Responses to Trauma

Some research advocates taking a multi-dimensional approach when examining responses to trauma and/or PTSD (Amick-McMullan, Kilpatrick, Veronen, and Smith 1989) including meaning(s) from traumatic experiences or events (Park 2010) and emotions and other responses (Kalayjian et al. 1996; Curry 2003; Jones et al. 2012) that may not always conform to PTSD. For instance, some research finds that the meanings assigned to traumatic events by those experiencing them are not only important (Park 2010) but may also result in higher post-traumatic responses especially if individuals confront "personal vulnerabilities" in what previously seemed safe places (Johnson et al. 2002:182).

Kalayjian et al. (1996), for instance, took a multi-dimensional approach in their study of survivors of the Ottoman-Turkish Genocide of 1915-1923 including the examination of emotions. A multitude of stressors existed; responses cited included 1)

destruction of life, 2) physical harm, 3) deportation, 4) pillaging and confiscation of property, 5) loss of status, 6) psychological/emotional experiences, and 7) methods of survival. Emotional responses to the genocide included feelings of humiliation associated with loss of status, loss of autonomy, property, and dignity; fear, isolation, resignation, and helplessness were also cited (Kalayjian et al. 1996). Emotional responses or reactions to Turkish denials of the massacres included resentment, hatred, and rage. This examination was important because it focused on a broader understanding of the responses of those experiencing a traumatic event including survivors who did not go on to develop PTSD.

Another example of research that included a multi-dimensional approach was the work of Jones et al. (2012) in their study of children's responses to surviving residential fires. These scholars found five categories or themes of responses from fire survivors including 1) vivid descriptions, 2) emotional responses, 3) physical injury, 4) loss, and 5) gains or benefits. Emotional responses included fear, sadness, panic, nervousness and others (Jones et al. 2012).

In sum, the above studies reinforce the need for more investigation especially concerning how one responds to a trauma or a traumatic event. Specifically, several gaps need investigation. First, these studies reinforce the need to examine the range of responses when exposed to traumatic events or experiences, the type of trauma experienced, meanings individuals attach to their experiences, and emotions that result from exposures to trauma. Second, it is faulty to assume traumatic exposure will lead to PTSD. Third, when PTSD occurs, assuming only direct or proximal exposure will lead

to PTSD is problematic. This points to the need to examine the range of reactions and responses to trauma including those who are directly and indirectly exposed.

The fact that many researchers in discussing or exploring relationships between traumatic events and traumatic stress have tended to assume a relationship with PTSD in that trauma causes or leads to PTSD has complicated and made research more challenging. In some cases, traumatic stress and traumatic events are conflated with PTSD. Consequently, studies are now routinely examining traumatic events and traumatic stress with PTSD and vice versa but are paying less attention to the range of responses or reactions to trauma and assume reactions or responses lead to PTSD or various types of posttraumatic stress. Although it is important to understand traumatic events and their connection(s) to PTSD, it is also important to understand traumatic events and the responses to trauma that do not lead to PTSD.

Posttraumatic Stress Disorder (PTSD)

Although definitions of what do and do not qualify for PTSD have evolved over time, trauma and traumatic experiences have long been part of human and societal experience. In the field of psychiatry PTSD as a diagnostic category was first officially introduced in 1980 in DSM-III (Diagnostic and Statistical Manual), this specific diagnosis helped identify individuals who manifested a series of symptoms after experiencing a severe or traumatic event and especially when symptoms continued long term (Van der Kolk, Weisaeth, and van der Hart 1996). However, before the diagnostic category was officially formed in the 1980s, a variety of syndromes (such as rape trauma syndrome, Vietnam veterans syndrome, battered woman syndrome, and abused child

syndrome) and other ailments (such as shell shock syndrome, combat syndrome, and combat fatigue) were discussed and debated (Van der Kolk et al. 1996).

Posttraumatic Stress Disorder is a psychiatric disorder found in the Diagnostic and Statistical Manual of Mental Disorders (DSM). Like other diagnoses in the DSM, those who receive the psychiatric PTSD diagnosis must meet a certain number of specific criteria including specific symptoms. An individual receiving a diagnosis of PTSD must experience a life-threatening or traumatic event ranging from experiences in war, physical or sexual assault, to natural disasters. According to the DSM, this exposure is determined through the "A" criterion and is known as the "stressor" criterion (American Psychiatric Association 2013). In order to receive the PTSD diagnosis, according to DSM-IV-TR (2000), an individual must also experience symptoms of re-experiencing ("B" criterion), avoidance and numbing ("C" criterion), and hyper-arousal ("D" criterion) as a result of the trauma (American Psychiatric Association 2000). The symptoms must last or persist a minimum of 30 days ("E" criterion) and interfere with life ("F" criterion), again according to the requirements set forth by DSM-IV-TR (2000). With the release of DSM-5 (2013) some changes were made (for more details on criteria for PTSD according to DSM-IV-TR and DSM-5, please refer to Figures 2 and 3 respectively). Below I explore criterion A more thoroughly.

Criterion A of PTSD

In DSM-IV-TR (2000), criterion A is commonly referred to as the stressor criterion; there are two parts, A1 and A2. According to DSM-IV-TR (2000), to meet criterion A1, an individual had to witness or experience an event involving "actual or threatened death or serious injury or threat to the physical integrity of self or others," and

to meet criterion A2 an individual's exposure to a traumatic stressor had to produce a response defined as "intense fear, helplessness, or horror" (American Psychological Association 2000). Criterion A for PTSD (DSM-IV-TR) was meant to assess potential stressors in both "objective and subjective" ways; criterion A1 was meant to be objective (direct or indirect exposure to traumatic stressor) while criterion A2 was meant to be subjective relating to the individual's reaction to a traumatic event (Pereda and Forero 2012:587). Requirements for criterion A have evolved over time from 1980 (DSM-III) to the most recent version released in 2013 (DSM-5). In fact, criterion A2 has been dropped from DSM-5 for reasons addressed later.

As was noted above in the stress and trauma literature, controversy surrounds criterion A of PTSD particularly regarding definitions of trauma and what exposures of trauma lead to PTSD. Weathers and Keane (2007), in their examination of criterion A of PTSD beginning in DSM-III, found defining a trauma has been problematic (to who, how often, when, how long) when considering the specification set forth by DSM "outside the range of usual human experience" and "would evoke significant symptoms of distress in almost everyone" (109). What exactly is meant by "outside" of, or, "usual human experience" and what qualifies as "significant" symptoms? Another concern is whether the trauma definition emphasizes magnitude or frequency—particularly whether traumatic events are traumatic because they are statistically rare (Weathers and Keane 2007). After the publication of DSM-III Herman (1992), for example, argued traumatic events are 'extraordinary' not because they are rare but because "they overwhelm the ordinary human adaptations to life" and "confront human beings with the extremities of helplessness and terror, and evoke the responses of catastrophe" (33). Updates to the

DSM (in DSM-III-R, DSM-IV, and DSM-IV-TR) addressed aspects of the aforementioned problems. DSM-III-R added a list of examples of qualifying traumatic events to help clarify what is traumatic and what is not; more specifics on "type and severity of distress evoked" was included; and the new category of 'indirect' exposures that qualified as traumatic were included (Weathers and Keane 2007:111). DSM-IV further revised criterion A by splitting into two parts, criterion A1 and criterion A2 (the objective and subjective components respectively) and providing a longer list of qualifying potentially traumatic events (Weathers and Keane 2007).

Traumatic events are not as rare as previously believed and occur more frequently than in the past (Friedman et al. 2011). Some evidence of this comes from Read et al. (2011) who found that more than 66% of their sample of entering college freshman qualified for exposure to criterion A from a previous traumatic event. Although experiencing a traumatic event may be more common than previously believed, this does not mean individuals will go on to experience PTSD. Still, the definition(s) of what is considered traumatic, or not, continue to be important to investigate.

Another problem is the assumption that an individual must usually have a "direct" experience with the trauma or traumatic event to qualify for criterion A1. There are studies that show not all PTSD recipients do directly experience the traumatic event. For example, after examining the rates of PTSD in relief workers at the world trade center from direct and indirect exposure, Zimering and colleagues (2006) found rates of acute PTSD were 6.4% and 4.6% respectively suggesting "indirect exposures can lead to PTSD even when criterion A1 of the DSM is not met" (553). The authors subsequently call for more research to define "parameters of indirect traumatic exposure that may be linked to

the development of PTSD" (Zimering et al. 2006:553). This again suggests that criterion A1 may require "further examination and precision" (557). Schuster et al. (2001) also found evidence that adults and children do not need to be present at a traumatic event to experience stress reactions especially "if they consider themselves similar to the victims" (1507).

Controversy has also existed for criterion A2 particularly concerning emotions experienced, or not experienced, by individuals exposed to trauma. Previously, in DSM-IV-TR (2000), PTSD diagnosis required individuals report experiencing intense fear, helplessness, or horror at the time of trauma. However, some studies have found individuals experiencing traumatic events fulfill all PTSD criteria except criterion A2 leading some scholars to worry that criterion A2 may be too broad (Kubany et al. 2010) while others express concerns that criterion A2 may be too narrow (Brewin et al. 2000; Lancaster et al. 2011). For example, Kubany et al. (2010) examined the predictive value of criterion A2 by looking at rates of PTSD among people who met criterion A2 by reporting one, two, and all three of the emotions (fear, helplessness, and horror). They found that those individuals who experienced all three emotions were significantly more likely to receive a PTSD diagnosis than those who experienced two, one, or none. The authors believe this to be an indication that criterion A2 was too broad and in need of refining. In other words, requiring fear, helplessness, *or* horror makes criterion A2 too broad because it only requires one of the three emotional reactions. On the other hand, requiring fear, helplessness, *and* horror not only narrows criterion A2, but also better captures those with PTSD.

On the other hand, while Brewin et al. (2000) also found all three emotions (fear, helplessness, and horror), and in particular at the time of trauma, did in fact predict later PTSD in a group six months after experiencing a traumatic event, some individuals who later met DSM criteria for PTSD did not report those emotions but instead reported other negative emotions such as anger and shame (499). In addition, Brewin et al. (2000) found women reported more fear and horror than men but did not differ in reports of helplessness (506). They subsequently suggested a need to for criterion A2 to "include other negative emotions" either during the trauma or after (507). In other words, for Brewin et al. (2000), criterion A2 is too narrow in that it limits negative emotions to only three (fear, helplessness, horror) when empirical evidence shows there are other negative emotions that can be, and are, experienced.

Lancaster and colleagues (2011) found anger, guilt, sadness, and disgust to be significant instead of fear, helplessness, and horror (315). As a consequence, they advocate for a need to examine emotions besides those in the DSM. Lancaster et al. (2011) also found gender differences in emotional predictors of PTSD symptoms: anger predicted PTSD for men and women but guilt was a unique PTSD predictor for men while disgust and sadness were unique predictors for women (316).

Also advocating for particular attention to a broad array of emotional responses especially beyond fear, helplessness, and horror, Kelley and colleagues (2012) found betrayal was not only associated with PTSD symptoms but also accounted for variance "in PTSD avoidance and numbing" above and beyond "injury, trauma type, and perceived life threat (PLT)" giving initial support that betrayal may be "a distinct, pathogenic feature of trauma" (Kelley et al. 2012:412). Additionally, the authors found

that betrayal level depends on trauma type and occurs especially with interpersonal traumas (412).

DePrince, Chu, and Pineda (2011) also support exploration of appraisal categories beyond fear in an attempt to better understand types of distress associated with exposure to trauma. These researchers examined responses to posttrauma appraisals of fear, anger, shame, betrayal, self-blame, and alienation because "appraisals survivors make posttrauma may play a role in the development and/or trajectory of different forms of trauma-related distress" (430-31). Especially interested in betrayal and alienation because these responses have not received as much attention in the literature, they found links between alienation and "multiple types of distress" and conclude trauma research needs to further examine appraisals (DePrince et al. 2011:439). Lisak (1994) also identified a range of stressful responses including anger, betrayal, fear, helplessness, loss, and others when examining male survivors of sexual abuse. These studies demonstrate a range of emotions and responses can and do occur after exposures to trauma and traumatic events. More importantly, the range of emotional responses do not always match the emotions highlighted in criterion A2. This points to a need to fully examine the range of emotional responses after traumatic stressful experiences.

Finally, others argue criterion A2 in general performs "poorly as a screening measure" and relying on other PTSD criteria (namely B, C, and D) might be enough to "characterize the disorder" of PTSD (Pereda and Forero 2012:590).

When DSM-5 was released in 2013, several changes arrived on behalf of trauma, PTSD, and criterion A. DSM-5 has a new section "Trauma and Stress-Related Disorders" that includes PTSD with some new changes (Friedman 2013:549). Firstly, the

definition of PTSD has been expanded (including a list of 20 symptoms—formerly 17).

Criterion A1 was retained although controversy still surrounds criterion A1 because it can

be difficult to draw the line in determining what is traumatic and what is not (see

Weathers and Keane 2007 and Friedman et al. 2011 for a review). Another problem

raised previously involved direct versus indirect exposure—previous evidence shows

individuals have developed PTSD from either direct or indirect exposure including

exposure(s) via media (Silver et al. 2004). However, now in DSM-5 indirect exposure

(e.g., death of a loved one) only counts if it was violent or accidental but still excludes

traumatic events witnessed through electronic media, TV, video games, or pictures

(Friedman et al. 2011). Criterion A2 (fear, helplessness, or horror), as mentioned above,

has been eliminated in DSM-5.

In sum, controversy previously existed with the stressor criterion ("A") from

DSM-IV-TR (2000). With the publication of DSM-5 (2013) and the removal of criterion

A2, some of the controversies surrounding the broadness of criterion A2 appear to have

been resolved (Friedman et al. 2011). However, there are still concerns especially

concerning where to draw the line of what is considered traumatic versus non-traumatic

and the role of indirect exposure(s) to trauma (Friedman et al. 2011).

Sex/Gender Differences in Traumatic Experiences and PTSD

When it comes to traumatic experiences, although men are more likely to

experience a traumatic event, women are two times more likely to develop PTSD

(Kessler et al. 1995). Several explanations for why gendered differences exist include

vulnerability to trauma, exposure to type of trauma, responses to traumas according to

culturally based gendered stereotypes, and the role of media.

Exposures and Vulnerability to Trauma

Bright and Bowland (2008) argue differences by gender may reflect differences in type of trauma experienced (women are more likely than men to be victims of interpersonal violence, sexual assault, rape, and child abuse) rather than sex differences in pathology. In addition, older women are more likely to have accumulated traumatic experiences over time compared to men; if there is an additive effect of traumas this could explain why women, and older women (by virtue of having the potential to experience more traumatic events over the life course), have been found to be more susceptible to trauma symptoms leading to a diagnosis of PTSD (Kessler et al. 1995; Bright and Bowland 2008). Vrana and Lauterbach (1994) agree; these scholars found males and females differed on events experienced, as well as psychological responses to those events (300). More specifically, women were more distressed when "witnessing a violent death or injury" while men were more affected by "child abuse and events they couldn't discuss" (Vrana and Lauterbach 1994:300).

Along the same lines of thought, Littleton and her colleagues (2012) examined two groups of women and their exposure to the Virginia Tech 2007 shootings including 1) those previously exposed to sexual assault/rape trauma and 2) those not exposed to such trauma. The authors found that those who had experienced sexual trauma had more severe symptoms such as depression and shooting related PTSD (Littleton et al. 2012). Additionally, both groups reported similar distress before and after the shootings, but, one year after the school shootings, the sexual trauma group had poorer adjustment and elevated depressive and PTSD symptoms (Littleton et al. 2012:582).

In another study, Tolin and Foa (2008) undertook a meta-analysis examining sex-specific differences in the risk of potentially traumatic events (PTEs) and PTSD and found that women were in fact more likely to meet PTSD criteria than men even though they were actually less likely to experience potentially traumatic events (supporting Kessler et al. 1995). In addition, they found women were more likely to have experienced sexual assault and child sexual abuse while men were more likely to experience non-sexual events (e.g., accidents, assaults, disasters, fires, seeing death and/or injury, and exposure to combat or war). However, the authors concluded that sex differences in exposure to potentially traumatic events only partially account for sex differences in PTSD (Tolin and Foa 2008:37). In other words, type of event experienced or type of exposure may be linked to vulnerabilities by gender.

Bright and Bowland (2008) also ultimately caution that while diagnostic measures assume a "one size fits all" mentality, once life course and gender differences (background likelihood of exposure to interpersonal violence) are accounted for there do not appear to be true age and/or gender differences in PTSD diagnoses.

Reactions to Trauma and Gendered Stereotypes

Others argue that what is considered stressful may vary by gender such that men and women respond or react differently even to the same traumatic event(s). For example, Hughes et al. (2011) in their student survey assessing posttraumatic stress symptoms and general symptoms of anxiety, depression, and grief after the Virginia Tech shootings in 2007, found approximately 15% of respondents experienced probable PTSD with a higher rate among women than men (407). When examining responses more closely by gender, Hughes et al. (2011) found awareness of the shootings was somewhat

higher for women than men, and, close proximity and exposure to the second incident was higher among men compared to women. Inability to confirm safety of close friends was also reported by more women than men but men reported having a class in the academic building of the second shooting incident more than women (407).

Some argue that gender stereotypes may explain gender differences in reactions to trauma and subsequent PTSD diagnoses. For example, Mendelsohn and Sewell (2004), using vignettes of hypothetical traumatic scenarios, examined respondent evaluations of male and female trauma victims. They found that hypothetical male trauma victims who displayed psychological symptoms were rated less socially favorably than female trauma victims (107). The authors believe this can be explained by a gender stereotype favoring gender expected emotions such that men should not display emotions considered feminine such as fear, sadness, helplessness, and vulnerability (108).

In a similar fashion, Norris et al. (2001b) found Mexican culture (having a more traditional societal view on gender roles) strengthened sex differences in disaster victims with regard to posttraumatic stress while African American culture (having a less traditional view) weakened sex differences (7). Although Valdez and Lilly (2014) found women were much more likely to endorse Criterion A2 (the "stressor" criterion) than men after controlling for "different types of traumatic event exposure and biological sex," they conclude this is due to "biological sex differences in vulnerability to stress" (38). However, Valdez and Lilly's (2014) research might actually be evidence of diagnostic measures (such as Criterion A2 of PTSD) being biased in the direction of female stereotypes so that women today are more likely to receive the diagnoses whereas men suffer from a historical femininity bias. Ironically, according to Van der Kolk and

colleagues' (1996) historical review of trauma in psychiatry, between 1895 and 1974 the study of trauma centered mostly on white males (61). It seems likely then, that when PTSD was constructed in 1980 with DSM III there was not much thought given to gender per se; however, in the years since then the DSM has not significantly altered diagnostic criteria in a way that would correct such a gender bias.

West and Zimmerman (1987) focus on the importance of the concept "doing gender" which entails a "critical assessment of existing perspectives…on sex, sex category, and gender" to understand gender as "embedded in everyday interaction" (West and Zimmerman 1987:125). Bem's (1981) gender schema theory also supports a "doing gender" approach because an internal schema "organizes and directs the behavior of an individual's sex type" that begins in childhood with socialization (cf. Valdez and Lilly 2014:35). In other words, very early on, and continually, children learn to evaluate others, and, regulate themselves according to cultural definitions of "maleness" and "femaleness" (35). This may in turn impact not only what is perceived as traumatic by gender, but also, how men and women react or respond to traumatic events.

Role of Media

Still others have examined the role of media and gender after traumatic experiences (McIntyre, Spence, and Lachlan 2011). For instance, McIntyre and colleagues (2011) examined media use by gender after a shooting and found while men and women were both interested in seeking information, women experienced more stress, "engaged in more information-seeking," and "sought specific media" believing it would alleviate stress (306). In addition, females also reported higher amounts of "fear, confusion, and panic…and were less calm" than their male peers (McIntyre et al.

2011:307). Ultimately, information may not always reduce stress but instead contribute to "stress-related psychological reactions" (309).

In sum, although research consistently finds a gender or sex difference in experience of traumatic events, and, diagnosis of PTSD, inconsistencies abound regarding why those differences exist. This demonstrates the importance of considering trauma type, stressor type, socialization factors, and even exposure to media when examining gender.

Age Differences in Traumatic Experiences and PTSD

The literature also acknowledges differences by age when it comes to traumatic experiences and PTSD. Studies tend to find that younger individuals fare poorer in their responses and adjustments to traumatic events compared to older individuals. However, as with differences by sex, there are inconsistencies as to why differences exist by age. Some explanations for differences by age include exposure to the type of trauma and subsequent reactions to that trauma as well as the role of media in the aftermath of trauma.

Trauma Type and Exposure

Taylor and Weems (2009) examined what youth report as traumatic and/or stressful. The authors found that being exposed to media violence, family separation, witnessing nonfamily violence, and loss events were identified by youth as traumatic events (Taylor and Weems 2009:97). Respondents also identified depression, eating disorders, recreational drug use, and phobic responses as stressful (97).

Tierens et al. (2012) in their examination of children/youth witnesses to a motor vehicle accident found witnesses to an accident in which someone is injured may still be

at risk of developing posttraumatic stress reactions but to a lesser degree than those who directly experience the event. However, findings indicated female sex, other stressful events, appraisals and coping were more important for the development of trauma symptoms than the type of motor vehicle accident experienced (286). This is an important finding because it contradicts the dose-response model's assumption that "severity and proximity of exposure are most important factors in the development of trauma symptoms" (285-286).

Reactions to Trauma

Some researchers examine children and/or adolescent samples exclusively to better understand their reactions to trauma. Pynoos et al. (1987), for example, looked at the reactions of elementary school children one year after a sniper attack on their school playground to better understand the "grief reactions" and how they might relate to post-traumatic stress disorder (54). The researchers found that these children had similar responses to adults in both grief and posttraumatic stress reactions. For example, children expressed anger, disbelief, sadness, having dreams related to the traumatic event, having thoughts related to the dead student, wanting to be more like the dead student, and either avoiding games the student played, or, playing games the student played (Pynoos et al. 1987). Unlike adults, children were found to be less able to share their grief experiences or to seek support. Additionally, children, compared to adults, have not fully developed their ability to express sadness and/or affect around sadness; this ability "increases only gradually with age" (Pynoos et al. 1987:7).

Role of Media

As with sex/gender, an important area to consider with age includes exposure to media. As a result, some researchers have also looked at the impact of media on young survivors of traumatic events. Haravuori et al. (2011) looked at the impact of media on adolescents (ages 13-19) experiencing a traumatic event (a school shooting in Finland). Although "being interviewed" was associated with stress, higher scores of "posttraumatic symptoms did not differ between those who refused to be interviewed and those not approached by reporters" (70). In addition, the authors found that those "who were distant from the traumatic event" and "already vulnerable to psychological symptoms" were more likely to follow media (Haravuori et al. 2011:76). Those who were more directly exposed to the trauma were also affected by indirect media exposure. In other words the authors' findings support concerns expressed "about adolescents' media consumption after catastrophic events (Duggal et al. 2002; Laugharne, Janca, and Widiger 2007; Otto et al. 2007)" whether the event exposure is direct or indirect, or the media exposure is direct or indirect (cf. Haravuori et al. 2011:76). Like with gender/sex, it is important to consider trauma type, stressor type, and media exposure when examining age.

The literature on traumatic stress, reactions to trauma, and findings regarding PTSD have inconsistencies. As Norris (2006) and others have pointed out, much progress has been made but more investigations are needed. Although traumatic stress has been difficult to define, many researchers agree that sudden and violent events such as school shootings are traumatic to those involved (and often times for those indirectly or vicariously involved). Furthermore, these types of events sometimes lead to the

development of posttraumatic stress, posttraumatic stress disorder, and other psychological problems. However, Silver et al. (2004) have determined the following to be myths: 1) universal reactions exist to trauma or traumatic events (or that they are predictable); 2) psychological response(s) to trauma will follow a logical pattern or orderly sequence of stages; and 3) psychological response to trauma requires direct, proximal exposure to the stressor and that traumatic stress response is proportional to the degree of exposure, amount of loss, or proximity to the trauma. It appears then, that not all traumatic events lead to the same symptoms, at the same time, and in the same way.

Quantitative vs. Qualitative Assessments of Trauma

Another problem in trauma research and in the literature entails the sole focus on quantitative measures at the expense of qualitative assessments. Much of the research on traumatic events, stress, and PTSD has been theoretically limited to various DSM definitions and assumptions especially of criterion A. The consequence has been less attention to open-ended answers or assessments about the full potential range of experiences and/or stress responses.

Because different information is gained when phenomena are assessed qualitatively, it is important to employ qualitative methods whenever possible. In fact, studies have shown the benefits of qualitative analysis when it comes to trauma. For instance, Van Wesel and colleagues (2012) point out that qualitative research provides opportunities for "theory building" as well as the opportunity for trauma survivors to recall experiences "in their own terms" (516). Paton and colleagues (2009) advocate on behalf of qualitative research because it permits trauma researchers to learn more about the "lived experience" of trauma survivors (450). Hawkins et al. (2004) also argue

qualitative analysis enabled them to give voice to the "various experiences" of survivors while simultaneously providing an "informed study of responses" in their interviews with parents and students who experienced the 1999 Columbine high school shootings (199).

Palinkas et al. (2004) argue quantitative approaches alone are not sufficient in trauma research and particularly regarding PTSD because context often determines what is stressful or traumatic and how the trauma finds expression (114). Take for example, Carlson and Rosser-Hogan (1994)'s examination of cross-cultural responses to trauma and their finding that hunger (compared to the death of a loved one) was the most stressful to Cambodian refugees because hunger directly threatened survival. Similarly, Yeomans, Herbert, and Forman (2008) in their research on traumatic stress reactions of Burundian people found open-ended questions (versus standardized measures) were valuable because they allowed for "broader assessment...[and] the degree to which participants articulated their distress…would not have been evident had only standardized symptom measures been used" (233).

As a result of a lack of qualitative investigations, there are many possibilities for future research. For example, Vrana and Lauterbach (1994) suggest "research and clinical work with trauma would benefit…[from] allow[ing] people to report trauma without being required to provide detailed accounts of the experience" because some respondents are not able or willing to disclose many details about their traumatic experiences (299-300). In addition, although traumatic events have been well studied recently, "[f]ew accounts of responses to school-based crises have been published to date and most that have provide very general information" (Crepeau-Hobson et al. 2012:208). This is unfortunate because "school violence affects all members of the school

community" (Daniels, Bradley, and Hays 2007:654). Bonanno (2004) also calls for more attention to "investigations of loss and trauma [to] include more detailed study of the full range of possible outcomes" especially in an attempt to better understand how people who face a trauma tend to recover and move on to have functioning and fulfilling lives (26).

Although disaster studies have increased over the last 25 years Norris (2006) argues the trauma field has not done a good job of examining long and short-term effects of trauma, sample sizes have remained about the same, and longitudinal designs and representative samples have decreased. In addition, most of the quantitative studies have done little to "expand knowledge of how culture shapes the experience of disaster stress" (183). In short, many trauma studies have lacked methodological quality.

In sum, approaching traumatic research from a qualitative approach contributes to the field as a whole. Although interviews, case studies, and ethnographic work are important, my dissertation examines a short open-ended answer that allowed respondents to be as general or specific as they desired. One advantage of this approach is that respondents may feel in control to disclose whatever amount of information they choose and on "their own terms" (Van Wesel et al. 2012:516). Another advantage is the fact that respondents may feel more inclined to be forthcoming especially if unwilling or unable to provide a lot of details (Vrana and Lauterbach). Therefore, by "giving voice" (Hawkins et al. 2004:199) to what respondents believe was most stressful and getting their "lived experiences" (Paton et al. 2009:45) about the shootings at Virginia Tech in April 2007, I uncover information about what was most stressful directly from those who experienced the event (Palinkas et al. 2004) instead of imposing *my* definition of what was most

stressful. In this dissertation I have large sample sizes, and extend my examination beyond college students to include faculty and staff. Studies also demonstrate that college populations are important to study even when homogenous in nature because they can be diverse in exposures to previous/prior traumas (Read et al. 2011). However, it is also important to consider additional populations because teachers, administrators and other staff also experience crisis reactions (Daniels et al. 2007). I examine both students (graduate and undergraduate) and faculty and staff members because this allows me to have a fuller understanding of what was stressful according to diverse populations rather than just focusing on one demographic group.

After reviewing the literature, what is less certain is whether Criterion A of PTSD (from DSM-IV-TR and DSM-5), is necessary to capture serious/severe traumatic symptoms; whether DSM-5 and its removal of criterion A2 will better capture those with high PTSD symptoms; whether indirect exposure to traumatic events (not just direct exposures) can lead to high PTSD symptoms, whether there are differences in stressful accounts by those who go on to develop PTSD versus those who do not, whether there are differences in stressful accounts by sex/gender and whether there are differences in stressful accounts by age/role. Part of answering the big question why some people go on to develop psychological problems after traumatic events while the majority do not may require a better understanding of subjective stressful accounts of responses and reactions to traumatic events for both those who do not go on to develop PTSD as well as those with PTSD, the role of the "stressor" criterion A of PTSD, and the relationship to sex/gender and age/role.

Research Questions

My research questions in this project target inconsistencies in the literature and contribute to the areas of stress and trauma reactions/responses, exposure to the event, criterion A of PTSD, sex/gender, and age/role. Specifically, I determine whether criterion A is needed to receive a diagnosis of probable PTSD. I also examine subjective evaluations of stress indicators of criterion A[1] for PTSD (DSM-IV-TR and DSM-5) and as indicators of indirect exposure(s) (not meeting criterion A) that may have been the basis for probable PTSD in respondents. I examine whether there are differences in subjective evaluations of stress by sex/gender and age/role, and whether the processes that link experiences to probable PTSD differ by sex and/or age/role. My research questions include:

Q1. What are the general stressful responses/reactions of faculty/staff and students after experiencing the shootings of April 16, 2007 at Virginia Tech?

Q2. Is criterion A (A, A1, A2) necessary for a diagnosis of probable PTSD?

Q3. If criterion A was not necessary for a diagnosis of probable PTSD in all cases, what stressful experiences/responses/reactions (not conforming to criterion A) was linked to probable PTSD? How do they compare to the general responses?

Q4. How do the processes linking experiences and reactions to probable PTSD differ for men and women?

Q5. How do the processes linking experiences and reactions to probable PTSD differ for younger (students) and older (faculty/staff) respondents?

Answering the above questions makes several important contributions. First, this research contributes to better understanding whether and how indirect exposures (not

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[1] In DSM-IV-TR (2000), criterion A included two parts: A1 (objective) and A2 (subjective). With the publication of DSM-5, criterion A changed and A2 was dropped. In an attempt to avoid confusion, I individually refer to each specific criterion (A, A1, or A2) and include DSM-IV-TR (2000), or DSM-5 (2013) whenever appropriate.

conforming to criterion A) can be the basis for a high level of posttraumatic stress. The VT study (Hughes et al. 2011) did not assess criterion A (A1 or A2). However, Hughes et al. (2011) did find evidence that indirect exposure (not being able to contact friends) was linked to probable PTSD. Wusik and Jones (2015) in their case study of "Daryl" also found indirect exposure, defined as "uncertainty for someone's well-being," linked to PTSD symptoms (14). Schuster et al. (2001) found that individuals across the United States experienced PTSD symptoms after the September 11, 2001 terrorist attacks in New York City. Silver et al. (2004) also concluded having to be present or close to a traumatic event to suffer PTSD symptoms is not necessary for the experience of a high level of posttraumatic stress. However, all of these studies provide limited evidence on stressful experience using a small number of closed-ended questions.

Second, there are unanswered questions about the applicability of criterion A2 that can be addressed through these research questions. Kubany et al. (2010) argued that meeting all three components of criterion A2 increases the likelihood of PTSD (according to criteria B through F), however, meeting two, one, or none of the components mattered little. This study also was limited by the use of closed-ended questions to tap criterion A2. Although the recent release (2013) of DSM-5 has removed criterion A2, debate regarding this criterion continues, and the findings of the present study can be used to inform that debate.

Third, it is unclear why epidemiological studies show that women have twice the rates of PTSD compared to men, even though men are more likely to experience traumatic events (Kessler et al. 1995). It is also unclear why young people fare more poorly when it comes to traumatic events. Having access to individual evaluations of

what was most stressful allows for a more respondent-driven (as opposed to solely

investigator-driven) approach that provides more detailed accounts of the experience of

traumatic stress. I expect these accounts will assist in understanding *how* traumatic stress

is experienced differently for men and women, and for people of different ages and/or

roles (e.g., faculty/staff and students).

—**Chapter 3 METHODS**

In order to answer the research questions posed above, it became apparent that I would need to include both quantitative and qualitative measures. Furthermore, I chose to examine both faculty/staff and students as a means of better understanding stress in traumatic situations among a more diverse sample. Although mass shootings themselves are still a rare phenomenon, it is important that we have a deeper understanding of stress during such traumatic events and across different demographic groups.

In this chapter, I first outline the methodological approach of my study. Next, I detail data and samples used, variables, sampling procedures, and software used. Finally, I explain coding procedures for open and pre-determined categories, inter-coder agreement, and data analyses performed. The Virginia Tech Institutional Review Board (IRB) for human subjects approved this study.

The methodological approach of this study used qualitative and quantitative components to answer five research questions. In the first part of this study, I concentrated on the open-ended qualitative question about stressful reactions to the April 16th shootings (detailed later in Chapter 4). For the first research question, I focus on what respondents found stressful in general and evaluated this question by performing open coding on the open-ended responses. In the second part of this study, statistical analyses were applied including descriptive statistics and bivariate cross tabs to better determine the relationship between probable PTSD and criterion A. Probable PTSD is not clinically diagnosed; rather, probable PTSD assesses a high level of posttraumatic stress symptoms from criteria B, C, and D of PTSD from DSM-IV-TR (Hughes et al. 2011). For the second research question, I examine respondents who qualified for

probable PTSD and also qualify for criterion A of PTSD using both qualitative and quantitative measures. To evaluate this question, I coded responses/reactions into pre-determined categories that matched either version of criterion A (from DSM-IV-TR and DSM-5). For the third research question, I continue to examine what respondents who qualified for probable PTSD found stressful but who did *not* qualify for criterion A. To evaluate this question, I coded responses into descriptive categories to have a better understanding of what respondents found to be stressful and for those who qualified for probable PTSD but did not qualify for criterion A. For the fourth research question I examine respondents who qualified for probable PTSD but not criterion A by sex to better understand what was stressful for females compared to males. For the fifth and final research question, I examine respondents who qualified for probable PTSD but not criterion A by age and role (faculty/staff compared to students) to better understand what was stressful for younger compared to older individuals.

Data and Sample

Three months following the VT shootings, a survey of 4,639 VT students and 1,659 faculty/staff assessed a number of measures including open-ended responses, PTSD symptoms using the TSQ (Trauma Screening Questionnaire), and others.

This dissertation uses both qualitative and quantitative data from the same survey. The qualitative data come from an open-ended question about respondents' assessment of what was most stressful on April 16. The quantitative data come from scale questions, diagnostic checklist variables, dummy variables, and categorical variables including measures to uncover patterns of probable PTSD.

Table 1 provides the demographics of the overall samples for faculty/staff and students. As seen in Table 1, nearly 60 of faculty/staff identify as female while nearly 40% identify as male. Faculty/staff between ages 18-49 make up nearly 60% of the sample, while those 50 years and older make up nearly 39% of the sample. Regarding racial/ethnic composition, 90.5% are white, 2.2% are African American, 3.3% are Asian, and 1.6% identify as Latino/a. Regarding students, nearly 55% identify as female while 45% identify as male.

Students between ages 18-24 make up nearly 88% of the sample; students 25 years and older make up just over 12% of the sample. Regarding racial/ethnic composition, 88.4% are white, 2.6% are African American, 7% are Asian, and 2.5% identify as Latino/a. When it comes to year in school, or classification, nearly 16.6% indicated they were freshmen at the time, 20.5% were sophomores, 19.4% were juniors, 26.4% were seniors, and just over 17% were graduate students.

Table 1: Demographics of Faculty/Staff and Students from the Overall Samples.

Faculty/Staff (N=1659)	Number of Respondents	Percent of Sample	Students (N=4639)	Number of Respondents	Percent of Sample
Sex			**Sex**		
Female	989	59.6%	Female	2532	54.6%
Male	660	39.8%	Male	2107	45.4%
Age			**Age**		
18-49 years	980	59.1%	18-24 years	4071	87.8%
50-78 years	640	38.6%	25-68 years	568	12.2%
			Classification		
			Freshman	768	16.6%
			Sophomore	949	20.5%
			Junior	902	19.4%
			Senior	1226	26.4%
			Graduate Student	794	17.1%
Race/Ethnicity			**Race/Ethnicity**		
White	1502	90.5%	White	4100	88.4%
African American	36	2.2%	African American	121	2.6%
Latino/a	27	1.6%	Latino/a	114	2.5%
Asian	55	3.3%	Asian	327	7.0%

Stressful Reactions-Open-ended question

Using a sample from the 4,639 students, this dissertation draws from the open-ended responses to the question "Taking everything into consideration, what was the most stressful part of April 16 for you personally?" This dissertation also utilizes the responses from a sample of 1,525 faculty/staff members who were asked the same question. I began with the open-ended question and responses because I wanted to more thoroughly "uncover and understand what lies behind" these responses (Strauss and

Corbin 1990:19) as well as "preserve participants' meanings" as much as possible through their words (Charmaz 2006:55).

More specifically, I examine what respondents report as their most stressful reactions or experiences on April 16, in order to answer research question 1, "what are the stressful responses/reactions of faculty/staff and students after experiencing the April 16, 2007 shootings at Virginia Tech?" This provides a better understanding of the profile of stressors that emerged as a result of the shootings at Virginia Tech in general. Having the open-ended responses is important because while some respondents answer the question succinctly with a single or short list of reactions or responses, others go into more depth and explain why and how they were stressed.

In addition, I examine the connection to stressful responses/reactions and criterion A of PTSD from DSM-IV-TR (200) and DSM-5 (2013). PTSD is a diagnostic category that was first constructed in 1980 for the DSM-III (Diagnostic and Statistical Manual). PTSD includes a series of criteria used to identify individuals who have experienced a traumatic event and as a result of the traumatic event continue to experience symptoms. Following are Figures 1 and 2. Figure 1 provides a complete list of the requirements needed to fulfill each PTSD criterion according to DSM-5 (2013). Figure 2 provides a complete list of the requirements needed to fulfill each PTSD criterion according to DSM IV-TR (2000).

Figure 1: DSM-5 (2013) PTSD Criteria.

DSM-5 (2013)[2] includes the following criteria for PTSD:

Criterion A-Stressor (one required): The person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence.	• Direct exposure. • Witnessing the trauma. • Learning that a relative or close friend was exposed to a trauma. If the event involved actual or threatened death, must be violent or accidental. • Indirect exposure to aversive details of the trauma, usually in the course of professional duties (e.g., first responders, medics). Does not include indirect non-professional exposure through electronic media, television, movies or pictures.
Criterion B- Intrusion (one required): The traumatic event is persistently re-experienced.	• Intrusive thoughts. • Nightmares. • Flashbacks. • Emotional distress after exposure to traumatic reminders. • Physical reactivity after exposure to traumatic reminders.
Criterion C- Persistent Avoidance (one required): Avoidance of trauma-related stimuli after the trauma.	• Trauma-related thoughts of feelings. • Trauma-related reminders.
Criterion D- Negative Alterations (two required): Negative thoughts or feelings that began or worsened after the trauma.	• Inability to recall key features of the trauma. • Overly negative thoughts and assumptions about oneself or world. • Exaggerated blame of self or others for causing the trauma. • Negative affect. • Decreased interest in activities. • Feeling isolated. • Difficulty experiencing positive affect.

[2] Criteria are taken directly from DSM-5 (2013) and the following website: http://www.brainlinemilitary.org/content/2014/06/dsm-v-tr-criteria-for-ptsd.html

Criterion E- Alterations in Arousal and Reactivity (two required): Trauma-related arousal and reactivity that began or worsened after the trauma.	• Irritability or aggression. • Risky or destructive behavior. • Hypervigilance. • Heightened startle reaction. • Difficulty concentrating. • Difficulty sleeping.
Criterion F- Duration (required).	Symptoms last more than 1 month.
Criterion G- Functional Significance (required).	Symptoms create distress or functional impairment (e.g., social, occupational).
Criterion H- Exclusion (required).	Symptoms are not due to medication, substance use, or other illness.
Dissociative Specification. In addition to meeting criteria for diagnosis, an individual experiences high levels of either of the following in reaction to trauma-related stimuli.	**Depersonalization.** Experience of being an outside observer of or detached from oneself (e.g., feeling as if "this is not happening to me" or one were in a dream. **Derealization**. Experience of unreality, distance, or distortion (e.g., "things are not real").
Delayed Specification.	Full diagnostic criteria are not met until at least six months after the trauma(s) although onset of symptoms may occur immediately.

Figure 2: DSM-IV-TR (2000) [3] PTSD Criteria.

Criterion A-Stressor (Both must be present)

A1 Experienced, witnessed, or confronted with event of actual or threatened death or serious injury, or, threat to physical integrity of self or others.
A2 Reaction involves intense fear, helplessness, or horror.

Criterion B- Re-experiencing (One or more present):

B1 Recurrent & intrusive distressing recollections of event.
B2 Recurrent distressing dreams.
B3 Acting or feeling event is re-occurring.
B4 Intense psychological distress at reminders.
B5 Physiological reactivity to reminders.

Criterion C-Avoidance (Three or more):

C1 Efforts to avoid thoughts, feelings conversations associated with trauma.
C2 Efforts to avoid activities, places or people that arouse recollections of trauma.
C3 Inability to recall important part(s) of trauma.
C4 Diminished interest or participation in significant activities.
C5 Feeling detached or estranged from others.
C6 Restricted range of affect.
C7 Sense of foreshortened future.

Criterion D-Persistent arousal (Two or more):

D1 Difficulty falling or staying asleep.
D2 Irritability or outbursts of anger.
D3 Difficulty concentrating.
D4 Hypervigilance.
D5 Exaggerated startle response.

Criterion E Duration:

Symptoms from Criteria B, C, and D must be more than 1 month (30 days).

Criterion F Clinical:

Disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning.

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[3] Criteria are taken directly from the DSM-IV-TR (2000) and the following website: https://www.ncbi.nlm.nih.gov/books/NBK83241/

Examining exposure(s) to criterion A is directly connected to research question 2, "Is criterion A (as defined by DSM-IV-TR and DSM-5) necessary for diagnosis of probable PTSD?" By examining what respondents found to be stressful and then comparing their responses to measures of exposure and probable PTSD, I examine whether criterion A from DSM-IV-TR and DSM-5 was needed for probable PTSD. If criterion A was not necessary for probable PTSD, using these same open-ended responses I investigate respondents' reports of what was stressful who qualify for probable PTSD and compare them to the general responses from the first question. This was an attempt to better understand what, if any, differences exist in stressful responses of those in general versus those qualifying for probable PTSD.

The open-ended responses are also crucial to understanding what, if any, differences exist by gender/sex and/or age/role. This is important in order to answer the fourth research question, "How do the processes linking experiences and reactions to probable PTSD differ for men and women?" and the final research question, "How do the processes linking experiences and reactions to probable PTSD differ for younger (students) and older (faculty/staff) respondents?" By examining responses from males and females, I get a better understanding of what, if any, and how differences occur by sex. Likewise, I examine both college students (undergraduate and graduate), and, faculty and staff members. Typically only one population is examined; I examine these two groups to better understand what, if any, and how differences occur by age or role. Without examining the open-ended responses, I will only be able to tell if there are sex/gender and age/role differences but not be able to understand more of the how and/or why concerning those differences.

Closed-ended survey questions

The closed survey questions are used to determine exposure to the stressor criterion (A, A1, A2), and whether faculty/staff and students met probable PTSD. I also use some quantitative measures to determine qualification for criterion A that are separate from, but later compared with, qualitative measures I constructed for criterion A. Following is list of variables included in the quantitative measures.

Exposure to trauma

Referring back to Figures 1 and 2 (above) respectively, the following survey questions are used to determine *exposure* of criterion A as defined by DSM-5 (2013) and DSM-IV-TR (2000).

<u>*Criterion A Strict (DSM-5)*</u>

Criterion A from DSM-5 (2013) includes the following measures:

"Between the first and second shootings, which of the following experiences did you have? Yes or No.

- Saw someone who had been wounded or killed;
- Saw activities of the police SWAT team;
- Helped someone who had been injured."

"Where were you at the time of the second shootings (at Norris Hall)? Please click on all response choices that apply."

- In Norris Hall;
- In Norris Hall on the floor where the shooting took place;
- In a classroom where the shooting took place;
- In another classroom on the floor where the shooting took place;
- In Burruss Hall on the side next to Norris Hall;
- Elsewhere in Burruss Hall;
- In Randolph Hall or Holden Hall;
- In Hancock Hall or Patton Hall or another nearby building;
- At a campus location close enough that I heard the shots."

"Which of the following experiences did you have in the first hour or two after the Norris Hall shootings? Yes or No.

- You were injured;
- Saw someone who had been injured (not on TV);
- Saw someone who had been killed (not on TV);
- Saw people running in panic (not on TV);
- Saw medical personnel attending to someone injured (not on TV);
- Saw activities of the police SWAT team (not on TV);
- Helped someone who had been injured."

"How many of the people who died (q14)/who was injured but not killed (q15)/who escaped uninjured (q16) in the shootings were…

- Your boyfriend, girlfriend, or spouse;
- A close friend."

Criterion A1 Expanded (DSM-IV-TR)

Criterion A1 includes measures from criterion A (DSM-5) plus criterion A1 as

defined by DSM-IV-TR (2000).

"Between the first and second shootings, which of the following experiences did you have? Yes or No.

- Became aware of police activity on campus;
- Learned about what happened at Ambler Johnston Hall;
- Was alerted to take protective steps."

"Other than between 9 and 10am, Monday, April 16, 2007, would you have normally been involved in activities in Norris Hall during spring term in 2007?

- In a classroom where the shootings occurred;
- At some other place on the floor where the shootings occurred;
- At some other place on another floor in Norris Hall."

"A number of people would have normally been in Norris Hall at the time of the shootings, but for some reason they were not there that day. Please click on any of the places below at which you would have normally been but were not that day.

- A classroom where the shootings occurred;
- Some other place on the floor where the shootings occurred;
- Some other place on another floor in Norris Hall."

How many of the people who died (q14)/who was injured but not killed (q15)/who escaped uninjured (q16) in the shootings were…

- A friend but not a close friend;
- Someone you knew well, but not a friend;
- Anyone else who you knew at all, even if only distantly;
- Anyone else who was close to someone you know;
- A professor or teacher of yours (student survey)
- A colleague or co-worker (faculty/staff survey) of yours."

Criterion A2 Helpless Strict

Criterion A2 Helpless strict is defined by criterion A2 (meeting the "helpless"

emotion) from DSM-IV-TR (2000) and includes the following measures:

"Between the first and second shootings, which of the following experiences did you have? Yes or No.

- Was in a locked building and unable to get out."

Criterion A2 Helpless Expanded

Criterion A2 Helpless expanded includes A2 Helpless strict plus "helpless"

expanded to include describing helplessness and synonyms of helplessness; it includes

the following measures:

 "Where were you in the first hour or two after the Norris Hall shootings?

- Stayed in a locked building on campus and was not allowed to leave."

"Which of the following experiences did you have in the first hour or two after the Norris Hall shootings? Yes or No.

- Had close friend(s) you tried unsuccessfully to contact to confirm their safety."

Criterion A2 Fear/Horror Strict

Because "fear" and "horror" share synonyms for one other (see Table 7) and there

did not exist separate questions asking about "fear" and "horror" in the survey, one

measure was used to measure criterion A2 Fear strict and A2 Horror strict simultaneously

by using the following questions:

"On a 0 to 10 scale where 0 means "not at all afraid," and 10 means "completely terrified,

- What number describes how afraid you were that you might be killed at your worst moment on April 16?"

"On a 0 to 10 scale where 0 means "not at all afraid," and 10 means "completely terrified,

- How afraid were you that someone you cared about would be seriously hurt or killed?"

Although fear and horror had to be measured together, it was possible to examine both "strict" and "expanded" definitions by coding appropriately. In this case only those respondents who selected a 10 ("completely terrified") were coded as "strict."

Criterion A2 Fear/Horror Expanded

To capture respondents who met the "expanded" definition of fear and horror, respondents who selected a number from 6-10 were coded a 1 while all those selecting 0-5 were coded a 0 in response to the same two questions from above:

"On a 0 to 10 scale where 0 means "not at all afraid," and 10 means "completely terrified,

- What number describes how afraid you were that you might be killed at your worst moment on April 16?"

"On a 0 to 10 scale where 0 means "not at all afraid," and 10 means "completely terrified,

- How afraid were you that someone you cared about would be seriously hurt or killed?"

Probable PTSD

As indicated earlier, probable PTSD is not the same as being clinically diagnosed with PTSD. Instead, the TSQ (Trauma Screening Questionnaire), a "validated screen for PTSD" was used to assess posttraumatic stress symptoms but was "modified" to include

items relevant to the April 16, 2007 shootings (Hughes et al. 2011:405). Following is a description of probable PTSD as defined in Hughes et al. (2011) since it is the same measure of probable PTSD used in this project.

Questions were combined to form a measure of probable PTSD according to DSM-IV-TR (2000). Criteria B, C, D, and F are specified below in more detail. Criterion E (Duration) is assumed because the survey was administered 90 days after the event and criterion E requires at least 30 days of symptoms after the event. Respondents were required to meet at least one symptom from criterion B, two symptoms from criterion C, and one symptom from criterion D two or more days a week, as well as, "upsetting memories or inability to work (criterion F) 'some,' 'a lot,' or 'extremely' in the two weeks prior to the survey" (Hughes et al. 2011:405). Respondents were then dichotomized into those with "high posttraumatic stress" and those without (Hughes et al. 2011:405).

"Here is a list of problems people sometimes have after exposure to violent events. How often did each problem happen to you over *the past two weeks*?

- Just about everyday;
- 4-5 days a week;
- 2-3 days a week;
- 1 day a week;
- Never."

Criterion B of PTSD (Re-experiencing)

"You had upsetting thoughts, pictures, or sounds of what happened come into your mind when you did not want them."

"You had dreams about April 16 or other bad dreams."

"When something reminded you of the shootings, you got very upset or afraid."

Criterion C of PTSD (Avoidance/Numbing)

"You tried not to talk about, think about, or have feelings about what happened."

"You tried to stay away from people, places, or things that made you remember what happened."

"You were less able to have positive feelings or take pleasure in things[4]."

"You felt more emotionally distant or not close to other people than usual."

"You worried more than usual about bad things that might happen to you or your loved ones in the future."

Criterion D of PTSD (Arousal/Hyperarousal)

"You had more trouble than usual going to sleep or often waking up during the night."

"You felt more irritable or easily angered than usual."

"You had more trouble than usual concentrating or paying attention."

Criterion F of PTSD (Clinical)

"Your reactions to the tragedy interfered with your ability to work or carry out your daily activities."

"You were upset or distressed by memories of the tragedy."

Table 2 presents the numbers and percentages of probable PTSD for the larger faculty/staff and student samples. As seen in Table 2, there are 153, or 9%, of faculty/staff with probable PTSD. Of those, 116, or nearly 76%, are female and 22% are male. Faculty/staff with probable PTSD between ages 18-49 are 61.4% of the sample while those 50 and older make up 35.3% of the sample.

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[4] This question came from a different series of questions on cognitive reactions to the events of April 16: "How much did the events of April 16 affect you in each of the following ways over *the past two weeks*?"

When it comes to students, 781, or 16.8% of the sample have probable PTSD. Of those, 578, or 74% are female while 26% are male. Students with probable PTSD between ages 18-24 are 92.1% of the sample while students 25 and older are nearly 8% of the sample. Examining year in school, 16.6% identified as freshmen, 22% as sophomores, 23.2% as juniors, 26.2% as seniors, and nearly 12% as graduate students.

Table 2: Faculty/Staff and Students with Probable PTSD from the Main Samples.

Faculty/Staff (N=1659)	Number of Respondents	Percent of PTSD Sample	Students (N=4639)	Number of Respondents	Percent of PTSD Sample
Total Probable PTSD	153	9.2%	**Total Probable PTSD**	781	16.8%
Sex			**Sex**		
Female	116	75.8%	Female	578	74.0%
Male	34	22.2%	Male	203	26.0%
Age			**Age**		
18-49 years	94	61.4%	18-24 years	719	92.1%
50-78 years	54	35.3%	25-68 years	62	7.9%
			Classification		
			Freshman	130	16.6%
			Sophomore	172	22.0%
			Junior	181	23.2%
			Senior	205	26.2%
			Graduate Student	93	11.9%

Text analysis

In order to analyze the open-ended responses, text analyses were undertaken for both the open coding and pre-determined coding components of my project. Text analysis is a qualitative method used to review text to uncover themes and recurrent

patterns. I began with an inductive approach as I viewed data from the student and faculty/staff files and coded data according to common themes. My analysis draws from the tenets of grounded theory but does not fit into the "classical" model in that I am analyzing secondary open-ended responses with an eye toward discovering emergent themes through a recursive process. Simultaneously I am open to existing theories in trauma including theories on exposure, gender, and role. I engage in a recursive process between existing theories in the trauma and mental health literature and my data to better understand my findings and results. This process allows me to utilize and/or expand upon existing theories to not only better explain but also address inconsistencies or gaps in the literature.

Sampling Procedures

There are 1,525[5] total faculty/staff respondents and 4,639 total student respondents in the April 16th data set to the open-ended question: "Taking everything into consideration, what was the most stressful part of April 16 for you personally?" I randomly selected 20% of each dataset for in-depth analysis. I also oversampled both students and faculty/staff to include those who were in Norris Hall on the floor of the shootings as they occurred. The final total number of open-ended responses analyzed in this study (undergraduate/graduate students and faculty/staff) was 1250. Although a large sample, this large sample is important to better understand stressful responses to the April 16, 2007 shootings from the perspectives of students and faculty/staff at Virginia Tech.

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[5] There were originally 1,659 faculty/staff respondents, but because a very large number did not answer the open-ended question (more than 1,000) I chose 20% from the 1,525 faculty/staff who responded to the open-ended question.

In order to select a random sample of each population (faculty/staff and students), each respondent was assigned a number through a random formula generator in Microsoft excel (exact procedures available upon request). Then, 20% from each data set was selected. Prior to oversampling there were 305 faculty/staff responses and 928 student responses. This brought the total sample to 1233 responses prior to oversampling. However, it was important to oversample respondents who reported being present in Norris Hall at the time of the second shooting; they were oversampled and added to the existing 20% samples (faculty/staff and student datasets). Respondents were selected from survey question q8 "Where were you at the time of the second shootings (at Norris Hall)? Check all that apply." The question had 11 possible responses ranging from being inside the building at the time of the shootings to outside but near the building, on campus not near the building and off campus. Of the 11 choices, four (4) were included ("In Norris Hall;" "In Norris Hall on the floor where the shooting took place;" "In a classroom where the shooting took place;" and "In another classroom on the floor where the shooting took place"). There were 17 additional cases selected and added as a result of this oversampling. A total of 1250 cases from faculty/staff and students were analyzed.

Later, it was discovered that 106 of the student responses were blank because respondents refused to answer the open-ended question bringing the student sample down to 837 cases. As a result, an additional 106 student responses were then randomly added to the 837 cases to bring it back to 943 total student responses. The same procedures used to obtain the original samples were used (i.e., random formula generator in Microsoft excel).

Table 3 below presents the sample sizes for faculty/staff and students before and after over-sampling.

Table 3: Population sampling for faculty/staff and student data.

	Total Population	**20% Sample**	**Norris Hall 2nd floor**	**Total**
Faculty/Staff	1525	305	2	**307**
Students	4639	928	15	**943**
Total	**6164**	**1233**	**17**	**1250**

Sub-Sample Demographics

The demographics of faculty/staff from the sub-samples of faculty/staff and students are included in Table 4 below. As indicated in Table 4, 181, or 59% of faculty/staff sample identify as female while 124, or nearly 41% identify as male. With age categorized, less than 1% of the sub-sample are between 18-22 years of age, 7.5% are between 23-29 years of age, 23.5% fall with between 30-39 years of age, 27% are 40-49 years of age, 31.3% are 50-59 years of age, and just over 8% are between 60-78 years old. With regard to racial and ethnic composition, 91.5% indicate they are white, 2.3% indicate they are African American, 1.6% indicate they are Asian, and 1.6% identify as Latino/a.

For students in the sample, as also seen in Table 4, 522, or 55.4% identify as female compared to 421, or 44.6%, who identify as male. Examining age, students between 18-22 years are 78% of the sample, those between 23-29 years are 15.6% of the sample, those between 30-39 years of age are 4.3% of the sample, those between 40-49 years are 1.1% of the sample, and students over age 50 are less than 1% of the sample.

Regarding racial and ethnic composition, nearly 90% are white, 3% are African

American, 6.2% are Asian, and 3.2% identify as Latino/a. Finally, in looking at

classification, 14.5% of students are freshmen, nearly 21% are sophomores, nearly 20%

are juniors, 26.5% are seniors, and 18.6% indicate they are graduate students.

Table 4: Demographics of Faculty/Staff and Students from the Sub Samples.

Faculty/Staff (N=307)	Number of Respondents	Percent of Sample	Students (N=943)	Number of Respondents	Percent of Sample
Sex			**Sex**		
Female	181	59.30%	Female	522	55.40%
Male	124	40.70%	Male	421	44.60%
Age			**Age**		
18-22 years	1	0.03%	18-22 years	737	78.20%
23-29 years	23	7.50%	23-29 years	147	15.60%
30-39 years	72	23.50%	30-39 years	41	4.30%
40-49 years	83	27.10%	40-49 years	10	1.10%
50-59 years	96	31.30%	50-59 years	7	0.07%
60-78 years	25	8.20%	60-68 years	1	0.01%
Race			**Race**		
White	280	91.50%	White	844	89.50%
African American	7	2.30%	African American	28	3.00%
Latino/a	5	1.60%	Latino/a	30	3.20%
Asian	5	1.60%	Asian	58	6.20%
			Classification		
			Freshman	137	14.50%
			Sophomore	195	20.70%
			Junior	186	19.70%
			Senior	250	26.50%
			Graduate Student	175	18.55%

Analytical Software

This study uses QSR International's NVivo Pro11 software to assist with text analysis of the qualitative open-ended survey responses. I use this program to allow for assistance in the analysis particularly regarding organization, ease of storage, and efficiency of the open-ended question: "Taking everything into consideration, what was the most stressful part of April 16 for you personally?" Some of the features available in the software package include word frequencies and text searches. The word frequency option allows me to select the most frequent appearing words within a data set ranging from the most frequent word to the most frequent 1000. Once the program has successfully identified these words they can be presented as a list with counts and ranks provided in order of frequency, word clouds, table maps, and cluster analysis. The text search option can be used together with the frequency option by allowing me to search for the most frequent words. The text search may also be used by typing word(s) I wish to locate. The text search provides the reference point of where the text can be found within the dataset, case numbers are also easy to identify with the searched text, and a word tree can also be displayed. Any word or words can be searched and commands such as "AND, OR, NOT, Required, Prohibit" and others can be added to the search to help narrow or broaden my search. I am also able to more effectively label and add layers of labels (called nodes and sub nodes that function like an electronic code and sub-coding scheme). This is especially helpful as some codes/nodes become more complex and have more than one code/node or sub code/sub node. I can also then count and organize text that has been coded, labeled, or grouped. If I decide that something originally coded or grouped, needs to be moved, it is easy to move and then view. I am

also able to include the closed-ended measures and compare/examine by other variables (e.g., age, gender, answers to trauma questions) or to export data files into excel and into SPSS.

Because of the ability to efficiently examine, review and re-examine and re-review my data, I am able to spend much more time with my analysis than if it were solely manually done especially with such a large sample. As a result, the software allows for more depth of analysis, and, the ability to more efficiently organize, examine, compare, and review responses.

SPSS (statistical package for social scientists) version 24 is used to analyze quantitative measures.

Analytical and Coding Procedures

Once samples were selected and data sets were finalized, the process of coding the open-ended question began. I utilized a standard coding approach outline by Saldaña (2013) such that each code "represents and captures" the primary content and essence of each datum (4). Two types of coding took place: open coding and pre-determined coding.

Open coding was essential to understanding the profile of stress responses from faculty/staff and students. Because respondents were free to respond as they determined, responses were not previously organized and it was difficult to determine the categories that responses fit into. By going through each individual response and coding it, eventually what was most stressful across all respondents was organized and then categorized to determine the most frequent stressors and reactions.

By the completion of the open coding exercise, a much more thorough understanding of respondents' stress responses and reactions became clearer to me. I did not go into the open coding with a pre-determined definition of "stress." In fact, it was important to let the respondents tell me what was most stressful. However, it was also important to have a better understanding of how respondents' stress reactions/responses fit (or did not fit) with the "stressor" criterion A of PTSD (DSM-5), criterion A1, and criterion A2 (DSM-IV-TR). Thus, I also performed a pre-determined coding exercise (separate from open-coding) to categorize stress responses according to criterion A of PTSD (defined by DSM-IV-TR and DSM-5). Open coding was conducted first before moving on to pre-determined coding.

After independently performing multiple rounds of open coding from each population (faculty/staff and students), and having written out the pre-determined codes for criterion A of PTSD variously defined (DSM-IV-TR and DSM-5), I conducted the pre-determined coding.

Upon completion of all coding, I recruited and trained three undergraduate Sociology senior students to code the same responses (pre-determined and open coding). Student coders were recruited and trained from a small college nearby in another state. All coders were IRB approved, signed confidentiality agreement statements (provided by the Virginia Tech IRB), and only received responses that were reviewed first by me to remove potentially identifying characteristics. The undergraduate student coders received class credit as part of a qualitative methods course during the Spring 2015 academic semester.

Prior to coding, student coders spent approximately three weeks learning basics about qualitative methods, a summary of the problem statement and research questions related to this dissertation project, and about coding open-ended and pre-determined responses. Each student also had their own qualitative data (open-ended responses and interview transcripts) from research projects they had created for a senior capstone research seminar course. Prior to coding my respondents' responses, the coders did some "practicing" on their research data to get a little experience on coding. Student coders met with me once a week for three hours for approximately fourteen weeks. They also received academic examples from a coding textbook provided by me. The process of categorizing and grouping responses by themes was challenging for students at first. However, after practicing with their own projects, and seeing examples from the textbook, students began to feel more confident in their abilities to code.

Student coders participated in both types of coding, open coding and pre-determined coding. Student coders began with open coding. After completing open coding they then moved to pre-determined coding. They received responses to the same question: "Taking everything into consideration, what was the most stressful part of April 16 for you personally?" and were instructed to read responses once through before assigning an open code. Codes could be a word or phrase and student coders were told they could have multiple codes if they deemed appropriate. Student coders were instructed to do this coding independently of one another and of me.

After completing open coding, students were instructed to code using the criterion A pre-determined codes provided by me (and based off of DSM-IV-TR and DSM-5 criteria for criterion A). Students were instructed to read all responses once through. On

the second read they were instructed to assign the pre-determined category or categories that best fit with the respondent's answer. If no responses fit with any category for the pre-determined coding, student coders were instructed to indicate with a label of "not code-able." Again, student coders were instructed to perform this coding exercise independently of one another and of me.

Student coders received approximately 300 responses per week over the course of approximately four weeks and were instructed to conduct open coding. They coded faculty/staff respondents first and before moving on to student responses. Although student coders and I were not able to discuss particulars about the coding, the student coders continued to meet with me weekly and for coding sessions where they would gather together in the same physical space to code quietly (this was also to assist student coders with budgeting enough time to be able to complete coding before the end of the academic semester). I would check in with students to make sure they were making progress and ask if they were having any challenges or difficulties. After completing open coding we spent one week reviewing the codes for each respondent and why they coded their responses the way they did. I also compared their open codes with my open codes.

After completing the open coding exercise, student coders spent four more weeks conducting the pre-determined coding, again beginning with faculty/staff and ending with student respondents. As with open coding, after completion of pre-determined coding, we spent one week reviewing the codes for each respondent by each student coder including why a response did or did not receive a code(s). I again compared their pre-determined codes to my pre-determined codes. At the completion of the Spring 2015

semester, all three coders graduated. In the summer of 2015 I then calculated the "inter-coder agreement" for both open coding and pre-determined coding.

Inter-coder Agreement

After the two types of coding, it was important for all coders to meet together to determine coding agreement and disagreement. At the completion of both open and pre-determined coding, student coders met with me to reveal and discuss their codes of each response; each student coder provided an excel spreadsheet of their "final" codes. This was necessary to establish inter-coder agreement for the open and pre-determined codes.

For both open and pre-determined coding, I calculated total percent agreement across all categories for all coders. I developed three "nodes" in NVivo Pro 11 called "exact matches," "close matches," and "no matches." Then, I manually examined each response with each coder's code (in an excel spreadsheet imported into NVivo). I explain how "exact," "close," and "no matches" were determined before presenting inter-coder agreement percentages.

For open coding, "exact" codes were labeled as such only if there was 100% agreement on the main themes or categories. If labels were close to the exact language or theme and it appeared likely that the coder(s) would eventually get to the main category or code (based on our meetings and discussions) then they were labeled as "close" codes. In the instances of coders not developing their codes (repeated what the respondent said without a code or category), or using a word or phrase that was nothing like the response of the other coders, it was labeled "no match."

For pre-determined codes, "exact" codes were only assigned in situations where all three student coders and I agreed 100% on all codes, "close" codes were reserved for

instances of 75% agreement of one code, or in the event that 75% agreed on one code and 100% on a second or third code, and "no matches" were reserved for all remaining codes with less than 75% agreement.

After coding ended and student coders graduated, I realized that 106 of the student responses had no responses (respondents had refused to answer the open-ended question). Because of this oversight, the sample size used in student open and pre-determined coding was 837 instead of 943. This is reflected in the inter-coder agreement tables and calculations.

With regard to the open codes, all coders typically used close to, or the same language for coding (e.g., media, helpless, not knowing). In Table 5, the total number of matches from all four coders as well as the number of responses coded for faculty/staff and student open codes are included. After open coding had been completed for faculty/staff, approximately 33% of the codes were "exact" matches, approximately 59% were "close" matches and approximately 8% had "no matches." The combined "exact" and "close" matches yielded nearly 92% agreement for the faculty/staff open codes. After open coding had been completed for students, approximately 37% of the codes were "exact" matches, approximately 59% were "close" matches and approximately 4% had "no matches." The combined "exact" and "close" matches yielded nearly 96% agreement for the student open codes.

Table 5: Faculty/ Staff and Student Inter-coder Agreement (Open Codes).

	Faculty/Staff				Students			
	Total Matches	Number of Responses	Percent Agreement	Exact + Close	Total Matches	Number of Responses	Percent Agreement	Exact + Close
Exact Matches	404	101	32.89%		1240	310	37.03%	
Close Matches	724	181	58.95%	91.85%	1972	493	58.90%	95.93%
No Matches	100	25	8.14%		136	34	4.06%	
	(N=307)				**(N=837)***			

*Sample (N) should have been 943 but student coders were not able to code 106 "blank" responses. 106 more responses were then randomly added later to ensure 943 responses were analyzed (instead of 837 plus 106 "no responses"). Because the 106 added responses were not coded with student coders, they were not included in these inter-coder agreement calculations.

In most cases, the codes were in vivo (came directly from the respondents' own words) and helped boost percentages in "exact" and "close" matches because respondents were often using the same language. Because the student coders did not have as much time to develop their open codes there were many codes that were "close" but not "exact." Had there been more time for development, or had the student coders received the codes/categories ahead of time, it is highly likely that they would have had many more "exact" matches. In fact, when we sat down and discussed the codes and categories, all coders were in agreement that with a little more time they would have eventually arrived at more refined language to match more "exact" codes/categories. In lieu of an opportunity to re-code, we examined responses we did not initially agree on (but had been "close" to agreeing on) and all coders agreed on main codes/categories. Responses that originally fell into the "no match" category were still included in the

analyses and I ultimately had the final decision as to what to code them. I re-examined all responses several more times (three to four more rounds of recursive coding with the feedback from all student coders), and eventually arrived at more refined names or categories. Although there were a few changes in category names, the majority of codes and themes were nearly identical to the original sessions that included my student coders.

Pre-determined codes did not always apply to responses since variations of criterion A had to be met in order to receive any of the codes. As a result, a number of responses failed to qualify for any pre-determined code(s). Because all four coders were in agreement that these were not code-able responses they were ultimately considered and labeled "exact matches."

In Table 6a I provide the total number of matches from all four coders, the number of responses coded for faculty/staff pre-determined codes, and the number of responses that failed to qualify for a code (N/C). These responses that failed to qualify were responses that did not meet any version of criterion A and were the same responses later added to the "exact matches" category. In addition, I include the combined percent agreement of exact and not code-able responses, and the combined percent agreement of exact matches, not code-able responses, and close matches. After pre-determined coding had been completed for faculty/staff responses, approximately 12% of the codes were "exact" matches, approximately 28% were "close" matches and approximately 6.5% had "no matches." Combining "exact matches" with not code-able responses yielded nearly 66% agreement for the faculty/staff pre-determined codes. Combining "exact" (including not code-able responses) and "close matches" yielded approximately 93% agreement.

Table 6a: Faculty/Staff Inter-coder Agreement (Pre-Determined Codes).

	Total Matches	Number of Responses	Percent Agreement	Exact + N/C	Exact + N/C + Close
Exact Matches	144	36	**11.73%**		
Not code-able (N/C)	664	166	**54.07%**	**65.79%**	
					93.47%
Close Matches	340	85	**27.69%**		
No Matches	80	20	**6.51%**		
		N=307			

Table 6b includes the total number of matches from all four coders, the number of responses coded for student pre-determined codes, and the number of responses that failed to qualify for a code (N/C). In addition, the combined percent agreement of exact and not code-able responses, and the combined percent agreement of exact matches, not code-able responses, and close matches are provided. After pre-determined coding had been completed for student responses, approximately 18% of the codes were "exact" matches, approximately 19% were "close" matches and approximately 8% had "no matches." Combining "exact matches" with not code-able responses yielded approximately 73% agreement for the student pre-determined codes. Combining "exact" (including not code-able responses) and "close matches" yielded approximately 92% agreement.

Table 6b: Student Inter-coder Agreement* (Pre-determined Codes).

	Total Matches	Number of Responses	Percent Agree	Exact + N/C	Exact + N/C + Close
Exact Matches	592	148	**17.68%**		
Not Code-able (N/C)	1860	465	**55.55%**	**73.23%**	
					92.32%
Close Matches	640	160	**19.12%**		
No Matches	256	64	**7.65%**		
		N=837			

*Sample (N) should have been 943 but student coders were not able to code 106 "blank" responses. 106 more responses were then randomly added later to ensure 943 responses were analyzed (instead of 837 plus 106 "no responses").

For pre-determined coding, all coders typically agreed on what should be coded *A strict*. Although there were instances where we did not agree, once we reviewed the criteria and accounted for unintended misses/individual error, we found we were nearly always in agreement. The same happened for *A2 strict* codes (*A2 Fear-strict*, *A2 Helplessness-strict*, and *A2 Horror-strict)*. These codes were used anytime "fear," "helplessness," and/or "horror" or their synonyms were used by respondents to describe their own emotions or feelings. For example, a faculty/staff member said in response to what was most stressful, "I was on my way to the airport in [city name] when I learned of the tragedy. I felt so helpless and wanted to get home to know what was happening." All coders agreed that this response should be coded *A2 helpless strict.* Another example, from a student respondent, "After facing the deaths of friends and injuries of others, my emotional state was, to say the least, unstable. The worst part of this whole ordeal was when I turned on NBC one day and saw pictures of the madman who had slaughtered

several of my friends. It was so disturbing to know that these were probably the same images that my friends saw right before they were brutally murdered" was coded by all coders as *A strict.*

When we did not all agree on the code it was because one or more coders missed a word from the list of synonyms, or carelessly overlooked a term/word. Later, we also agreed that even if the respondent used these words but they were not used to describe their own personal individual feelings or experience, they did not qualify for *A2 strict* codes.

The coders and I also agreed on expanded definitions (*A1 expanded, A2 Fear-expanded, A2 Helpless-expanded, and A2 Horror-expanded*) that required us to code when respondent(s) described or suggested exposure to the shooting event(s), and/or experiencing fear, helplessness, and/or horror (rather than using the actual words or synonyms). However, when we did not agree, after accounting for careless mistakes, attending more carefully to language provided in front of us in the responses, and, discussing whether anyone was attempting to code for more than what was present, we agreed on the majority of the responses.

When we sat down to discuss the pre-determined codes, aside from instances of simply missing a code carelessly or simple oversights, we almost always agreed on *strict* and *expanded* codes. However, we did not have time to go back and re-code again to see how the inter coder agreement might have changed. Accordingly, as with open codes, I later reviewed all responses again in several more rounds, taking what had been discussed with student coders, and deciding the final codes for responses that had not met 100% agreement.

As I only had four months with my undergraduate student coders, I had to continue working on coding (both open and pre-determined) and had to incorporate discussions with my student coders, make decisions on changing, eliminating, and/or condensing codes. I continued a recursive and rigorous process of coding, particularly open coding, for nearly two years afterward. These inter-coder agreement percentages reflect only the four months I had with student coders before all three coders went on to graduate from college. Although I would have liked more time with student coders, these three students were deemed the most appropriate, and available, at the time. Once they graduated I was unable to re-train a new group of undergraduate coders. That being said, having been able to work with the student coders was instrumental in fine-tuning both my open codes and better understanding the nuances of the pre-determined codes (e.g., language in the DSM-IV-TR and DSM-5 was at times tricky and/or ambiguous to interpret or apply).

While the "exact" matches remained as they were since we had all agreed on the labels and codes, I did have to spend more time on the "close" matches and really grapple with whether to keep some codes, eliminate, or even combine codes. I went back and reviewed notes from out meetings on codes and justifications for coding as well as each student coder's excel files, notes, and notebooks. For both 'close' and 'no' matches, I had to then make the final decision(s) on labels and codes. This was a lengthy, detailed, and time-consuming process that took nearly two years to complete after working with my student coders. However, it led me to refine the open codes to 22 codes and then later to six main codes. I do not believe it would have been possible to achieve this as quickly as I did were it not for the assistance of my undergraduate student coders.

All in all, when it came to pre-determined codes, even when I had to continue the coding on my own, I typically did not overrule my student coders. However, when I did, it was less than 10% of the time and I did it when I thought it was warranted (either careless mistakes were made on the part of student coders, or, I ultimately decided they incorrectly applied the language of DSM and just got it wrong). When it came to the open codes I did not necessarily "overrule" my student coders more often but because the open coding did not have a pre-determined structure it needed more time to develop. This is why student coder agreement was much lower compared to pre-determined coding. If I had the opportunity to present the student coders with an updated list of codes we discussed, and the current codes I have arrived at, I am confident the coder agreement would have risen to 75% or higher.

Next, I detail the 22 open codes, the six main codes, and the two organizing categories.

Faculty/Staff and Student Data Open Codes

Open coding of the faculty/staff and student data originally yielded 22 codes (in alphabetical order): Administration blame, Aftermath, Connection to shooter, Disbelief, Emotion, Everything, Hearing gunshots, Helpless, Injured, I was there, Loss of life, Media, Mental health, Not being there, Not knowing, Not stressful, Other stress, Reality, Sympathy/Empathy, Witnessing, What if, and Why. Most of these codes were in vivo codes; that is, names of codes/categories come directly from respondents' own language or direct words. Ultimately, the 22 codes were collapsed into six main codes and two categories. The six codes included: Emotion, Helpless, Injured and Loss of life, Media, Not knowing, and Not stressed. The two categories included During April 16th (or the

"Immediate Aftermath") and the "Delayed Aftermath." Each main collapsed code and the two categories are elaborated on later in the chapter on qualitative analyses (see Chapter 4).

Below I delineate the pre-determined codes applied to the stress responses/reactions.

Faculty/Staff and Student Data Pre-Determined Codes

Pre-determined categories were used to identify criterion A (A1 and A2) of PTSD from DSM-IV-TR (2000) and criterion A from DSM-5 (2013) for the same sample. The pre-determined categories and instructions provided to student coders are included below. Student coders were instructed to assign as many categories to each response as necessary from the pre-determined list of codes. The pre-determined codes came from the PTSD "stressor" criterion A (DSM-5) and A1/A2 (DSM-IV-TR).

Criterion A1 of PTSD from DSM-IV-TR (2000): "*experienced, witnessed, or was confronted with an event that involved actual or threatened death or serious injury or threat to the physical integrity of self or others*" and **Criterion A2 of PTSD from DSM-IV-TR (2000)**: "*person's response involved intense fear, helplessness, or horror*" were broken down into individual categories. **C*riterion A of PTSD from DSM-5* (2013):** "trauma involves actual or threatened event" with four types of exposure: 1) directly experienced, 2) witnessed, 3) learned happened to a loved one (must be accidental or violent) and 4) repeated extreme exposure to details (first responders, police—media exposure does not count) was also used. The coding protocol follows.

Criterion A1 of PTSD from DSM-IV-TR (2000) and Criterion A from DSM-5 (2013)

There were two possible categories to code: strict and expanded[6].

- To meet the strict definition (***A-strict***) the respondent had to match the DSM-5 (2013) definition of criterion A (see above).

- To meet the expanded definition (***A1-expanded***) the respondent had to match the DMS-IV-TR (2000) definition of criterion A1 (see above).

Since criterion A2 was dropped in DSM-5, A strict is the only variable used from DSM-5 (2013). The variables used from DSM-IV-TR (2000) included measures for criterion A1 and criterion A2. The A2 measures are detailed below:

Criterion A2 Fear

There were also two possible categories to code for this category: strict and expanded.

- To meet the strict definition (***A2 Fear-strict***) the respondent had to use the word "fear" and/or any synonyms to describe his/her emotion(s). If the words explained the emotions of someone other than the respondent, the strict definition was not met. (For synonyms of "fear" see Table 7 below).

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[6] Originally a third category called "broad" was included but it was later dropped because the A1 expanded categories did the job of capturing all the respondents who did not fit into the strict categories. Furthermore, there were no responses that expanded beyond A1 that warranted additional criterion A categories. That is, if respondents did not fit into strict or expanded, there were not additional 'broad' scenarios or situations that respondents could neatly fit into (aside from not qualifying for the code(s)). Original lack of agreement stemmed from coder(s) trying to infer how the respondent felt rather than going by what the respondent actually said. Because our task was not to get into the head of the respondent, I ultimately dropped all *broad* codes and re-evaluated whether they qualified for any of the "expanded" categories.

- To meet the baseline definition (*A2 Fear-expanded*) the respondent had to suggest or describe the emotion fear but did not use the word "fear" or any synonym.

Criterion A2 Helpless

There were also two possible categories to code for this category: strict and expanded.

- To meet the strict definition (*A2 Helpless-strict*) the respondent had to use the word "helpless" and/or any synonyms to describe his/her emotion(s). If the words explained the emotions of someone other than the respondent, the strict definition was not met. (For synonyms of "helpless" see Table 7 below).
- To meet the baseline definition (*A2 Helpless-expanded*) the respondent had to suggest or describe the emotion fear but did not use the word "helpless" or any synonym.

Criterion A2 Horror

There were also two possible categories to code for this category: strict and expanded.

- To meet the strict definition (*A2 Horror-strict*) the respondent had to use the word "horror" and/or any synonyms to describe his/her emotion(s). If the words explained the emotions of someone other than the respondent, the strict definition was not met. (For synonyms of "horror" see Table 7 below).
- To meet the baseline definition (*A2 Horror-expanded*) the respondent had to suggest or describe the emotion fear but did not use the word "horror" or any synonym.

Below, Table 7 provides the synonyms used in pre-determined coding for criterion A2 fear strict, A2 helpless strict, and A2 horror strict (DSM-IV-TR).

Table 7: Synonyms for Pre-Determined Coding for Criterion A2.

	SYNONYMS
A2 FEAR	Trepidation; fright/fear; afraid; scared/scare; anxiety; panic; phobia; jitters; distress; worry; despair; dismay; doubt; concern; qualm; tremor; misgiving; terror/terrified; horror; revulsion; abhorrence; foreboding; angst; unease/uneasy; agitation; dread; aversion; alarm; nightmare.
A2 HELPLESS	Helpless/helplessness; powerless; incapacitated; exposed; vulnerable; unprotected; unable; defenseless; dependent; destitute; abandoned.
A2 HORROR	Horror; shock; terror/terrified; fright; monstrosity; detestation; abomination; trepidation; dismay; dread; panic; shuddering fear; aversion; abhorrence; loathing; hate; alarm; dislike; apprehension; disgust; revulsion; repugnance.

Faculty/Staff and Student Pre-determined Codes

Pre-determined coding differed from open coding in that student coders and I did not have to use a recursive and inductive process to arrive at codes and themes. Instead, pre-determined categories were decided before pre-determined coding took place.

In Table 8, the pre-determined DSM codes for faculty/staff are included with the number of times each category was coded, the percent of the faculty/staff sample (N=307), and the percent of the total number of coded responses (N=147). Approximately 54% of the faculty/staff sample responses were not coded because they failed to qualify for any of the DSM codes. (See Table 6a.)

The codes *A strict* (4%), *A2 Fear-expanded* (5.4%), and *A2 Horror strict* (4.76%) represented approximately 5.5% or less of the total number of coded responses. These

codes also came from less than 3% of the faculty/staff sample (1.9%, 2.6%, and 2.3% respectively). A small number of individuals qualified for *A strict* and any of the *A2* emotion codes (fear, helplessness, horror). More than 10% of the faculty/staff sample received the codes *A1 expanded* (11.4%) and *A2 Helpless-expanded* (12%) representing 23.8% and 25% respectively of the total number of coded responses. In addition, close to 10% received the codes *A2 Fear strict* (7.8%), and *A2 Helpless strict* (9.4%) representing 16.3% and nearly 20% respectively of the total number of coded responses.

Also in Table 8, the pre-determined DSM codes for students are included with the number of times each category was coded, the percent of the faculty/staff sample (N=943), and the percent of the total number of coded responses (N=598). Nearly 56% of the student sample responses were not coded because they failed to qualify for any of the DSM codes. (See Table 6b.)

The codes *A strict* (3.5%)*, A2 Fear-strict* (6.8%)*, A2 Fear*-expanded (4.8%) and *A2 Horror strict* (3%) represented approximately 7% or less of the total number of coded responses. These codes also came from less than 5% of the student sample (2.2%, 4.3%, 3.1% and 1.9% respectively). As with faculty/staff, a small number of students qualified for *A strict* and any of the *A2* emotion codes (fear, helplessness, horror). Similar to faculty/staff, close to or more than 10% of the student sample received the codes *A1 expanded* (11.9%) and *A2 Helpless strict* (8.8%) representing 18.8% and 14% respectively of the total number of coded responses. Finally, 30% of the student sample received the code *A2 Helpless expanded* representing 47% of the total number of coded responses.

Table 8: Faculty/Staff and Student Data Pre-determined Codes.

	Faculty/Staff Responses	% Faculty/Staff Sample	% Coded Responses	Student Responses	% Student Sample	% Coded Responses
Criterion A (DSM-5)	6	1.95%	2.81%	21	2.22%	2.75%
Criterion A1 (DSM-IV-TR)	40	13.03%	18.87%	135	14.32%	17.72%
Criterion A2 Fear strict (DSM-IV-TR)	24	7.81%	11.27%	41	4.34%	5.38%
Criterion A2 Fear expanded (DSM-IV-TR)	32	10.42%	15.02%	70	11.70%	9.19%
Criterion A2 Helpless strict (DSM-IV-TR)	29	9.44%	13.61%	83	8.80%	10.90%
Criterion A2 Helpless expanded (DSM-IV-TR)	66	21.50%	30.99%	369	61.70%	48.48%
Criterion A2 Horror strict (DSM-IV-TR)	7	2.28%	3.29%	18	1.90%	2.36%
Criterion A2 Horror expanded (DSM-IV-TR)	8	2.60%	3.75%	25	4.18%	3.28%
Total # coded responses	**212**	**47.88% N=307**	**N=147**	**762**	**63.41% N=943**	**N=598**

There were some challenges in applying some of the pre-determined codes

including attempting to breakdown what was meant by the language used in DSM-IV-TR

(2000) and DSM-5 (2013); deciding when to code for exact language (e.g., "fear,

helplessness, horror") used by the respondent for someone else as opposed to the respondent; and what qualified as a "loved one" (e.g., best friend, academic advisor a student might have been "close" to, roommate). Strict codes were used for responses that neatly fit any version of criterion A (A, A1, A2) of PTSD. Expanded codes were used for responses that did not neatly fit criterion A because they did not use the specific language, came close to qualifying, or were vague and ambiguous.

Disclosure

It is important that I acknowledge the fact that I was at Virginia Tech during the April 16, 2007 shootings. Although I worked very diligently to remain as objective as possible, it is very likely that my own presence at Virginia Tech and on campus the day of the shootings may have led me to unconsciously determine certain words or descriptions to be more stressful than my student coders (who were not at Virginia Tech during the shootings or at all).

In fact, at one point, all coders were faced with a particular response that I coded completely differently from my student coders and exactly because of my experiences being at Virginia Tech and on campus April 16, 2007. For example, I noted during one of our inter-coder agreement sessions that when a respondent had answered "the gunman was Asian" was most stressful for him or her, it had never occurred to me to think the respondent may hold racist or bigoted views. My interpretation was completely informed by having been on campus and experiencing the backlash from some individuals and groups against the Asian community because the shooter was Korean. My student coders were all shocked to see this response and had each pointed out that they were disturbed by the response. They interpreted it as racist and irrelevant as a "stress" response or

reaction. A good discussion facilitated by me followed. I note the incident because although rigorous my interpretative lens is no doubt influenced by having experienced such a traumatic event myself. Furthermore, this is my doctoral dissertation and I had a lot more invested in this research project than the undergraduate students who were "free" of the project after one semester. Nevertheless, as Carlson and Rosser-Hogan (1994) remind us, it remains important to include investigations of traumatic events with researchers who have had experience because it can be "treacherous…to do research on things outside your experience" (55).

In any event, the coding and analytical processes remained consistently rigorous and systematic as well as recursive. I performed many cycles of coding and re-coding and categorizing and re-categorizing until I was sure that I was unable to re-code and re-categorize any further. In other words, I continued to code until I believed I reached saturation.

Analytical Approach

There were a number of crucial steps in the analyses of this study. I first examine the general responses of stress from faculty/staff and students at Virginia Tech on April 16, 2007. These general responses and how they were arrived at are detailed in the next chapter (Chapter 4 Faculty/Staff and Students: Stressful Accounts). Next, I detail the coding procedures and how I arrived at various codes, categories, and/or themes (see Chapter 5). Later, I provide the results of statistical analyses including descriptive statistics, bivariate correlations, means testing, and binary logistic regressions (see Chapter 6 Results).

—Chapter 4 STRESSFUL ACCOUNTS ACCORDING TO FACULTY/STAFF AND STUDENTS

In order to better understand the accounts of stress from faculty/staff and students on April 16, 2007 at Virginia Tech, I examine what was considered stressful directly from faculty/staff and students on that day. I begin with a general description of the campus and the events as they unfolded on April 16, 2007; I heavily cite from the August 2007 Virginia Tech Review Panel charged by the then Governor of Virginia (henceforth referred to as the 2007 Governor's Report), campus emails, and other reliable sources of information before examining the diverse responses and reactions that followed. Next, I present the general reactions and responses of stress from faculty/staff and students. I examine the faculty/staff and students separately in an attempt to compare similarities and differences between these different populations. Finally, I examine the similarities and differences of stress reactions and responses to the shootings by gender.

General Description and Campus Layout

Virginia Tech is a large state university located near the Blue Ridge Mountains in the southwestern part of Virginia that offers a broad array of programs (science, engineering, liberal arts, architecture, etc.,). In 2007, at the time of the shootings, the main campus had between 131-153 major buildings, 16 road entrances, and ongoing construction spread over approximately 2,600 acres (Governor's Report 2007). [7]

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[7] The Governor's report was published in August of 2007, nearly 4 months after the shootings at Virginia Tech. This report, issued by Governor Tim Kaine of Virginia, was ordered as a means to better understand the timeline of events, the motivation(s) and history of the shooter, security of the Blacksburg campus, actions of the university administration, mental health laws, and more. Recommendations were outlined in each section of the report. I cite from parts of this report to convey the timeline of events and events that occurred that day as accurately as possible.

At the time of the shootings, according to the 2007 Governor's report, the campus population entailed approximately 33,500 students, faculty, and staff (34,500 if visitors, contractors, and transit workers are included).

April 16, 2007 Timeline of Events

According to the report presented to the Governor of Virginia in August 2007 the following is a chronology of events that took place Monday April 16, 2007 including the movements of the shooter, the response(s) of the university and communication surrounding the shootings, and what specific information was communicated to the campus community including faculty/staff and students.

7:00 AM-9:00 AM

In the early morning hours of Monday April 16, 2007, Seung Hui Cho, a senior English major, entered into the West Ambler Johnston[8] (WAJ) dormitory sometime around 7am and shot two students (who later died). He left WAJ and returned to his dormitory (Harper Hall) where he cleaned up, changed clothes, deleted his emails and university account, and removed and disposed of his computer hard drive and cell phone (which have never been recovered). Cho again left Harper Hall sometime before 9am heading to the post office in downtown Blacksburg to mail a package with photos, letters, and videos to NBC News in New York.

9:00 AM-9:30 AM

Details surrounding Cho's movements after he mailed the content to NBC are unknown until he arrived at Norris Hall (the site of the second shootings). He arrived at Norris Hall with a backpack that contained "two handguns," nearly "400 rounds of

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[8] West AJ is the west wing of the Ambler Johnston dormitory.

ammunition, a knife, heavy chains, and a hammer" (Governor's Report 2007:89). The

heavy chains were used to chain shut the three main entrances of Norris Hall. Figure 3

provides an aerial photograph of Ambler Johnston Hall, Harper Hall, and Norris Hall on

the Blacksburg campus of Virginia Tech (Governor's Report 2007:12).

Figure 3: Aerial Photo of Ambler Johnston, Harper, and Norris Halls.[9]
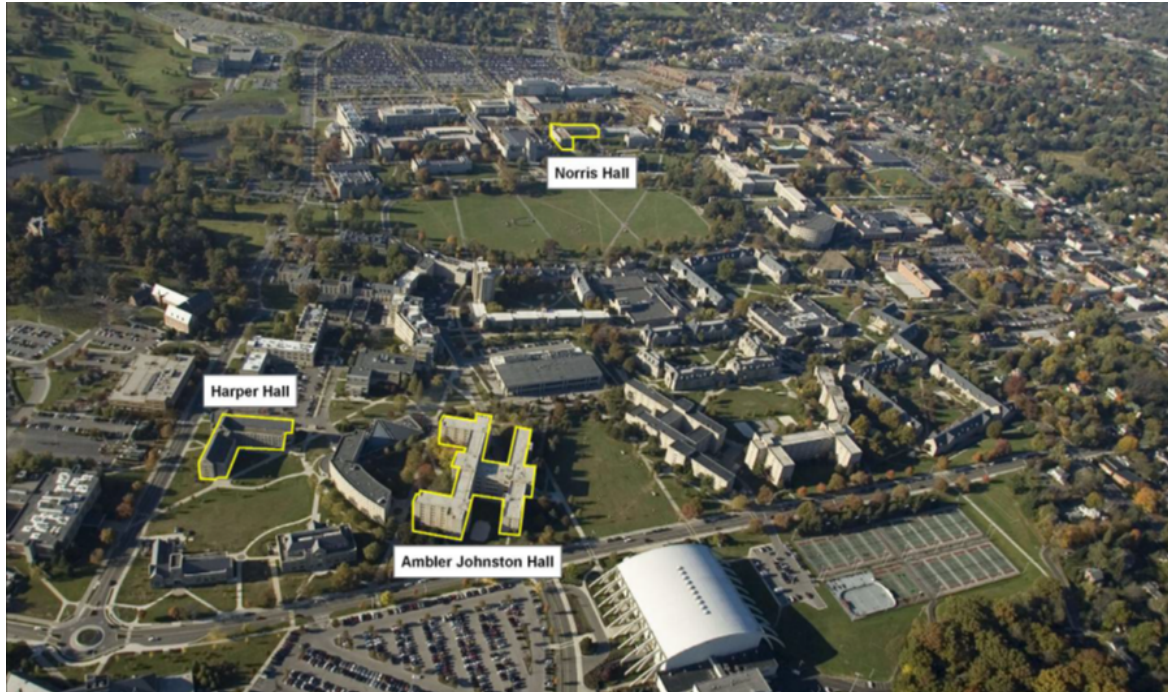
The first news of the WAJ double homicide from the university came shortly

before 9:30am with the following email message (also placed on the university main

website):

> "A shooting incident occurred at West Ambler Johnston earlier this
> morning. Police are on the scene and are investigating. The university
> community is urged to be cautious and are asked to contact Virginia Tech
> Police if you observe anything suspicious or with information on the case.
> Contact Virginia Tech Police at 231-6411. Stay tuned to the www.vt.edu.
> We will post as soon as we have more information."
>
> (Governor's Report 2007:82)

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[9] This photo is from the 2007 Governor's Report.

9:40 AM-9:52 AM

After roaming the halls of the second floor in Norris (where a number of classes were in session during the 9:05-9:55 am class block), Cho began shooting at approximately 9:40am and continued his rampage for 10-12 minutes before committing suicide (believed to be only because police arrived on scene and were in the building). Ultimately, Cho killed 25 students and 5 faculty members in Norris Hall. Another 17 individuals were shot but survived while 6 were injured from jumping out of windows in one of the classrooms (Governor's Report 2007). After the Norris shootings it was discovered that Cho fired approximately "174 bullets from two semi-automatic guns" and had "over 200 rounds left" before committing suicide (Governor's Report 2007:92).

At approximately 9:50am, a second email message was issued to the university community (and posted on the main university website):

> *"A gunman is loose on campus. Stay in buildings until further notice.*
> *Stay away from all windows."*
>
> (Governor's Report 2007:96)

10:00 AM-12:15 PM

At approximately 10:15 a.m., a third email message (and posted on the university website) was issued:

> *"Virginia Tech has cancelled all classes. Those on campus are asked to*
> *remain where they are, lock their doors, and stay away from windows.*
> *Persons off campus are asked not to come to campus."*
>
> (Governor's Report 2007:96)

The fourth e-mail, at approximately 10:52 a.m. said the following:

> *"In addition to an earlier shooting today in West Ambler Johnston, there*
> *has been a multiple shooting with multiple victims in Norris Hall. Police*
> *and EMS are on the scene. Police have one shooter in custody and as part*
> *of routine police procedure, they continue to search for a second shooter.*

> *All people in university buildings are required to stay inside until further notice. All entrances to campus are closed."*
>
> (Governor's Report 2007:96)

At approximately 11:30 a.m. a "planned faculty-staff evacuation" was posted to the Virginia Tech website and read:

> *"Faculty and staff located on the Burruss Hall side of the drill field are asked to leave their office and go home immediately. Faculty and staff located on the War Memorial/Eggleston Hall side of the drill field are asked to leave their offices and go home at 12:30pm."*
>
> (Governor's Report 2007:96)

At approximately 12:15 p.m., another message was posted on the Virginia Tech website and said the following:

> *"Virginia Tech has closed today Monday, April 16, 2007. On Tuesday, April 17, classes will be cancelled. The university will remain open for administrative operations. There will be an additional university statement presented today at noon. All students, faculty and staff are required to stay where they are until police execute a planned evacuation. A phased closing will be in effect today; further information will be forthcoming as soon as police secure the campus.*
>
> *Tomorrow there will be a university convocation/ceremony at noon at Cassell Coliseum. The Inn at Virginia Tech has been designated as the site for parents to gather and obtain information."*
>
> (Governor's Report 2007:96)

Although the two shooting incidents occurred over a two-hour time-span, the vast majority of the campus population was unaware of events as they took place and what they entailed. Once information began to be released from the university officials it happened very quickly, however, the content was ambiguous and much of the community did not have all the details that have been outlined above until much later. For those on campus experiencing lockdown, it was uncertain for how long the lockdown would remain in place and/or how many shooters were involved. On top of this fact, various media outlets and personnel were reporting any piece of information they received as it

came in—often times circulating false information, rumors, or disorganized pieces that were not fully verified or known at the time. The campus community, rather than having the details now known, only had information released by the university (via emails, notifications, and website posts) and what was being reported by various media sources. As a result of the rumors, lack of information, ambiguity, and general chaos of the shooting events, individuals on and off campus experienced various kinds of stressors.

Timeline of Events After April 16, 2007

Following the shootings on April 16, 2007, a number of notable events took place in the days following. Knowing some of the main events that took place both during and after the shootings is important to better understand the accounts of stress by faculty/staff and students. I outline those before moving on to the summaries of stress.

April 17, 2007

The very next morning, April 17, 2007, the Virginia Tech Police Department (VTPD) released the name of the shooter, and, confirmed the number of deaths resulting from the shootings on April 16, 2007 (Governor's Report 2007). Almost simultaneously, Virginia Tech announced classes would be canceled "for the remainder of the week to allow students the time they need to grieve and seek assistance as needed" (Governor's Report 2007:29).

A "convocation ceremony" was also held Tuesday April 17, 2007 in the afternoon for the "university community at Cassell Coliseum" on campus; speakers included U.S. President George W. Bush, Virginia Governor Tim Kaine, a number of religions local leaders from Muslim, Buddhist, Jewish, and Christian communities, and various Virginia Tech leaders and professionals (29).

On the evening of April 17, 2007, a "candlelight vigil" was held on the Virginia

Tech drill field for members of the community (29).

April 18, 2007

Early on the morning of April 18, 2007, a SWAT team entered Burruss Hall (a

building on campus close to Norris Hall) because of a "suspicious event" that later

proved to be a "false alarm" (Governor's Report 2007:29).

In the late afternoon, local police announced "NBC News in New York" received

the package mailed by the shooter that included photos of him with weapons, his

writings, and video recordings; the Governor's Report states that a "fragment" of the

video and pictures" were "widely broadcast" (29).

April 19, 2007

Virginia Tech announced all students killed in the shootings would "be granted

posthumous degrees in the fields" they were studying (Governor's Report 2007:29).

April 20, 2007

Virginia Governor Kaine declared a "statewide date of mourning" (Governor's

Report 2007:30).

Following first is a summary of general stress according to faculty/staff.

Afterward is a summary of general stress according to students. Both accounts are

oriented around two organizing categories that emerged during analyses: the "immediate"

aftermath (During April 16th) and the "delayed" aftermath (After April 16th). Details

surrounding the emergence of codes, categories, and themes are discussed later in

Chapter 5.

General Stress According to Faculty/Staff

According to the faculty/staff, what was most stressful ranged from not stressful at all, to stressful on the day of April 16th, to stressful after April 16th, and a combination of stressors that occurred both on the day of the shootings as well as afterward.

Beginning on April 16th and throughout the day, faculty/staff experienced a wide array of stressors depending on where they were that day. Faculty/staff who were on campus were stressed that they did not know what was going on although they had to shelter in place or remain in lockdown in their offices or buildings. In some instances because it was initially unknown where the second shootings were taking place, some faculty/staff were fearful or concerned that the danger was headed toward them or occurring in their own building or facility, or, might be headed to the location of their loved ones. In many cases, faculty/staff had to rely on media including Internet, TV, or radio, *if* they had access, to be able to try to understand or learn what was going on.

Faculty/staff who were not on campus were stressed because they were not allowed to come to campus and they also did not know what was going on. In some instances faculty/staff were not even in the state or the country and had to grapple with the tragedy from afar; this caused stress because they wanted to be close by to support others or to feel part of the community during a tragic time. Faculty/staff who were not on campus came to rely and depend on media (radio, television, internet, etc.,) to learn as much as possible.

For faculty/staff on and off campus not knowing what was going on while hearing sirens, public announcements, or witnessing police cars, ambulances, or a flurry of activity on and around campus was also very stressful. The fact that cell towers and

phone networks were jammed for much of the shootings and immediately afterward, added to the chaos, confusion, fear, and helplessness—faculty/staff were unable to contact loved ones or check on co-workers and students and simultaneously were unable to confirm their safety to those same individuals.

Faculty/staff who were in Norris Hall (the engineering building where Cho shot, injured, and killed the most faculty and students) said being in the building was stressful because of the exposure to hearing gunshots, and the fact that they knew, or became aware, that people were being injured and/or killed. Upon being evacuated, stress changed to not knowing if those storming the building were friend or foe, and, whether the event was over or continuing. For faculty/staff who were connected to departments or classes that experienced injury and loss of students and faculty, they were more likely to learn of the identity of victims earlier than the rest of the community—and this was stressful because it meant they knew those among the injured and/or dead.

After April 16th, faculty/staff talked about being stressed having learned more and more details of the shootings, the shooter, the survivors, and dead. In particular, faculty/staff were stressed to learn of how many were injured and killed, and eventually who the victims were (since the names were not released publicly until two days later). Another big stressor included media; faculty/staff talked about the inappropriateness of the behavior and tactics used by media personnel to gain information, interviews, and the general commentary about the shootings themselves. Added to this was the revealing of the full details and timeline of the shootings and shooter—not only was this in and of itself stressful but for some faculty/staff the details surrounding the decision(s) made by university officials were stressful. For other faculty/staff the attack of media or

questioning of the university administration and police were extremely stressful and perceived to be offensive.

After the 16th, faculty/staff talked about being stressed over what came next: how to get back to work, continue to work, and/or how to get back to "normal," how to interact with students, colleagues, and even family members. Faculty/staff also found it stressful to attend funerals of those they knew and/or the fact that so many were killed and wounded—the impact on the community as a whole was stressful and especially the fact that it happened in "our" community. Faculty/staff also expressed a variety of emotions including sympathy and empathy for those directly impacted, involved, or who experienced personal loss especially because the majority of the faculty/staff did not personally or directly know someone who was injured, killed, or involved in the shootings. Anger was sometimes directed at the university administration as well as the media for decisions that were made or not made during the day of the shootings.

General Stress According to Students

Students were similar to faculty/staff in what was most stressful in the sense that they too experienced a spectrum ranging from not stressful at all to including both the day itself and all that occurred afterward.

Beginning on April 16th and throughout the day, students who were on and off campus were stressed by not knowing what was going on and not being able to contact friends, loved ones, or family either to confirm safety or to let them know they were safe. Students on campus were stressed, and many felt helpless, by not knowing what was going on while they were in lockdown.

Students not on campus, including those who were away out of state or out of the country on study abroad trips, were stressed by not knowing what was going on and were especially stressed by not being on campus or with the community. The fact that the cell networks were down also made it more difficult and stressful to be able to reach out to others or be reached by others. Students also talked about losing more friends or friends of friends and the stress of helping others to cope especially those who lost friends or close ones. Not knowing how to prioritize feelings or worries and not knowing what would happen next with school, with classes, with friends, with future living arrangements and roommates, and with graduation was also cited as stressful by students. Those learning in the first day that they had lost an acquaintance or friend were stressed with how to deal with, or handle, it. Specifically, some had to cope with death itself, others were faced with searching for missing friends, and still others were hurrying to hospitals and trying to track down information. In general the number of those killed and injured was also highly stressful for students.

Students who were in Ambler Johnston Hall (the dormitory) or Norris Hall (engineering academic building) talked about being afraid, not knowing what was going on, or having to witness police activity and/or injury/death and wondering what would come next. These same students also talked about being confronted with death (either directly through witnessing or indirectly through hearing and the realization of what was going on).

After April 16th, students were generally upset, and some expressed anger, to not have been told about the first shootings. However, they were also stressed, and many were angered, by the media response and characterization of the school and community

as a whole. In particular some students were stressed at the betrayal or alienation felt as a result of media reporting and/or tactics after the initial tragedy and especially in the days and weeks following. Students mentioned that media were stressful because they pointed fingers at their school and administrators, were unfair, and/or ruined the reputation of the school/community. Having to see videos and/or photos of the shooter was also mentioned as stressful. Students also talked about how stressful it was to wait to know who was missing and/or confirmed dead. Another common stressor for students after the fact was questioning why not "me" or someone close (for those who did not lose anyone), as well as, why the shooter did what he did. Students were also stressed by ruminations of the shootings and what students (like them) had to go through and/or how their friends and families would cope (if they did not lose someone close). They too also experienced emotions including deep sympathy for those killed, injured, and their loved ones.

Although a majority of students did not personally or directly know someone who was injured, killed, or involved in the shootings, there were more students relative to faculty/staff who did experience direct and indirect loss. There was also more realization for students of how random the shootings were and how had any one variable been different they personally, or friends, or acquaintances, might have been more impacted. And although anger surfaced in some of the faculty/staff responses, anger directed especially at the media, appeared more prevalent among students.

After uncovering a general profile of the stressors experienced by faculty/staff and students, I now turn to how I coded and categorized the myriad of subjective stressful responses in the next section.

Chapter 5 RESULTS: QUALITATIVE GENERAL RESPONSES OF

FACULTY/STAFF AND STUDENTS

General Responses by Faculty/Staff and Students (Open Codes)

To answer my first research question: **"What are the general stressful responses/reactions of faculty/staff and students after experiencing the shootings of April 16, 2007 at Virginia Tech?"** I examined all responses in my sample without first knowing which responses qualified for criterion A or probable PTSD. Additionally, I did not begin with a preconceived notion or definition of stress. Although I later (see Chapter 6) did examine whether respondents fit criterion A of PTSD from DSM-IV-TR and DSM-5, initially I looked for students and faculty/staff respondents to tell me what they perceived to be the most stressful part or experience of April 16th. This was the same approach utilized by coders and myself when examining the open-ended responses and coding for patterns in what was considered "stressful."

Open coding of the faculty/staff and student data originally yielded 22 stress reactions/responses that were later further collapsed into six main codes and two categories. The categories did not emerge until I reached the end stages of coding.

In Table 9, the list of all original stress reactions coded for faculty/staff and students are included along with the number of times each reaction was coded, the percent of the faculty/staff and student samples, and the percent of the number of responses. The codes included (in order of frequency): *Not knowing, Aftermath, Reality, Media, Emotion, Sympathy/Empathy, Disbelief, What if, Administration blame, Hearing gunshots, Injured, Witnessing, I was there, Not being there, Other stress, Why, Everything, Mental health, Not stressful, and Connection to shooter.* Out of the 307 total

faculty/staff responses, there were 22 total codes, yielding 578 instances of a label or code. Out of the 943 total student responses, there were also 22 total categories, yielding 2263 instances of a label or code.

Table 9: Faculty/Staff and Student Data Open Codes (All Stress Reactions).

	# Faculty/Staff Responses	% Sample	% Coded Responses	# Student Responses	% Sample	% Coded Responses
Not knowing	85	27.68%	14.70%	274	29.10%	12.10%
Aftermath	76	24.80%	13.14%	502	53.23%	22.20%
Reality	74	24.10%	12.80%	297	31.50%	13.12%
Helpless	65	21.20%	11.24%	369	39.13%	16.30%
Loss of life	62	20.20%	10.72%	149	15.80%	6.60%
Media	60	19.54%	10.40%	289	30.64%	12.80%
Emotion	32	10.42%	5.53%	56	5.93%	2.50%
Sympathy/empathy	26	8.50%	4.50%	64	6.80%	2.82%
Disbelief	17	5.53%	2.94%	34	3.60%	1.50%
What if	13	4.23%	2.24%	68	7.21%	3.00%
Administration blame	11	3.60%	1.90%	22	2.33%	0.10%
Hearing gunshots	8	2.60%	1.40%	9	0.10%	0.04%
Injured	7	2.30%	1.21%	19	2.01%	0.08%
Witnessing	7	2.30%	1.21%	22	2.33%	0.10%
I was there	6	1.95%	1.03%	13	1.40%	0.06%
Not being there	6	1.95%	1.03%	7	0.07%	0.03%
Other stress	6	1.95%	1.03%	16	1.70%	0.07%
Why	5	1.62%	0.09%	26	2.75%	1.14%
Everything	4	1.30%	0.07%	8	0.08%	0.04%
Mental health	4	1.30%	0.07%	6	0.06%	0.03%
Not stressful	3	0.10%	0.51%	6	0.06%	0.03%
Connection to shooter	1	0.03%	0.02%	7	0.07%	0.03%
Total # coded	**578**	**N=307**	**N=578**	**2263**	**N=943**	**N=2263**

Both faculty/staff and students' 22 codes were later collapsed into six codes and two categories. In alphabetical order, the six collapsed codes for both faculty/staff and students were: *Emotion*, *Helpless*, *Injured and Loss of life*, *Media*, *Not knowing*, and *Not stressed*. The two organizing categories were: *"During April 16 (Immediate aftermath)"* and *"Aftermath (delayed aftermath)."* Responses often included more than one code. The number of times cited also differed by faculty/staff and students. In the section below I first delineate the six main codes and include descriptive quotes. Then, I discuss the two organizing categories and include illustrative quotes meant to present the range of responses of stress experienced by faculty/staff and students that day.

General Faculty/Staff and Student Responses: Main Codes

Figure 4 presents the number of times faculty/staff received a main code. The order of frequency included: not knowing, injury/loss of life, media, emotions, helpless, and, not stressed.

Figure 4: Faculty/Staff Main Open Codes.
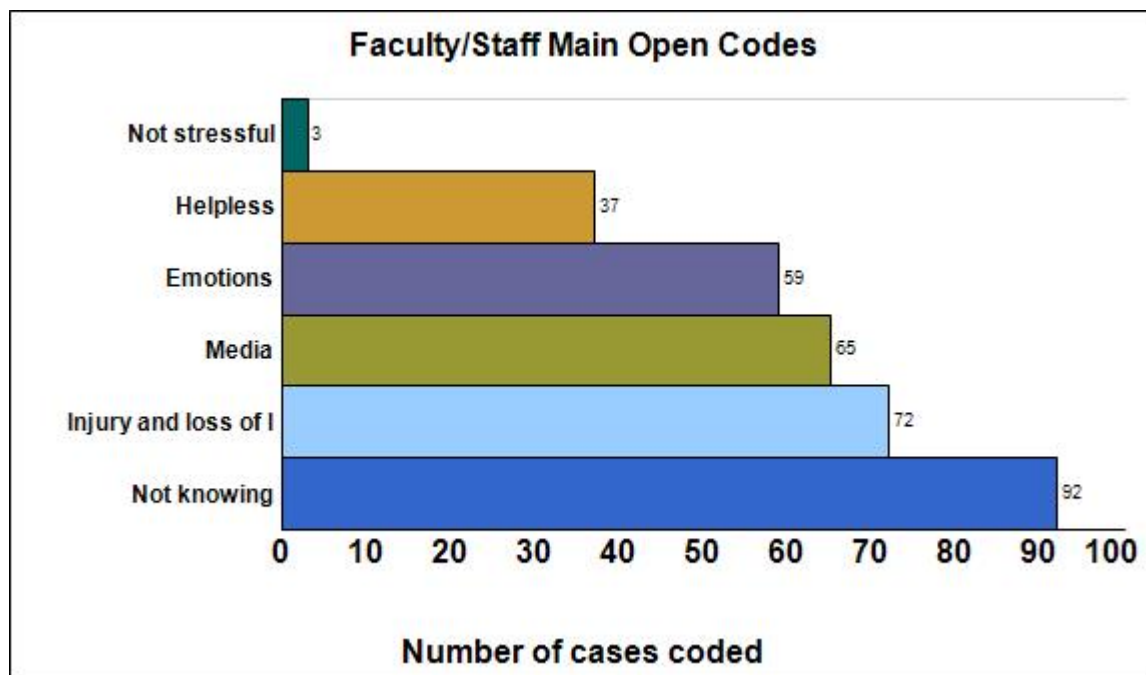
Figure 5 includes the number of times students received a main code. Order of frequency included: not knowing, media, injury/loss of life, helpless, emotions, and, not stressed.

Figure 5: Student Main Open Codes.
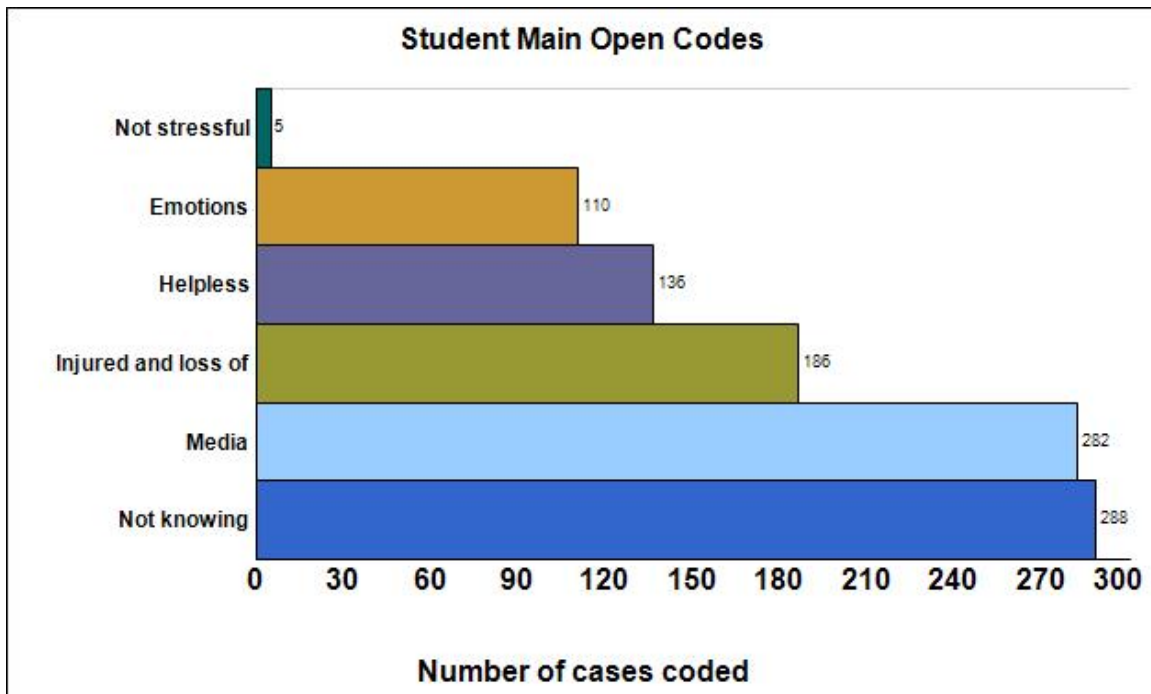
In Table 10, the main stress responses coded for faculty/staff and students are included with the number of times each reaction was coded, the percent of faculty/staff and student samples, and the percent of coded responses. Also included in Table 10 are the two organizing categories along with the number of times each was coded, the percent of faculty/staff and student samples, and the percent of coded responses.

Table 10: Faculty/Staff and Student Data Open Codes (Codes and Categories).

	Faculty/Staff Responses	% Faculty/Staff Responses	% Coded Responses	Student Responses	% Student Responses	% Coded Responses
CODES						
Not knowing	92	29.97%	16.46%	288	30.54%	16.42%
Injured/Loss of life	72	23.45%	12.88%	185	19.62%	10.55%
Media	65	21.17%	11.63%	282	29.90%	16.08%
Emotions	59	19.22%	10.54%	110	11.66%	6.27%
Helpless	37	12.05%	6.62%	136	14.42%	7.75%
CATEGORIES						
Aftermath	142	46.25%	25.40%	401	42.52%	22.86%
During April 16	93	30.29%	16.64%	353	37.43%	20.13%
Total # coded responses	**560**	N=307	**54.92%** N=559	1755	N=943	**53.76%** N=1754

Not knowing

The code, _Not knowing,_ was the most frequent code for both faculty/staff and students. Ninety-two faculty/staff and 288 students received the "not knowing" code. This code sometimes co-occurred with the code, "helpless." Respondents often indicate or describe the lack of information or knowledge, particularly during and immediately after the shootings, to be stressful. Respondents emphasize not knowing about the status of the safety of their friends, family, loved ones, or waiting on information on what to do next from the university, their departments, or supervisors as stressful. Responses ranged from "not knowing" what was going on, who was injured/killed, to "not knowing" how to feel, act, react, or be. Sometimes respondents described the feelings of "not knowing"

coupled with being locked in a room, office, or space as stressful. Over time, it appeared that when respondents talked about "not knowing" they also were describing a sense of "helplessness" because they were kept from information that allowed them to be worried or relax, to know what to do, etc. The "not knowing" seemed to take a lot of the control away from respondents that often emerged in responses where "helplessness" was cited or described.

Three examples from different faculty/staff respondents receiving this code include the following:

> "Not knowing what was going on as it was happening."

> "For the first few hours and until I knew all personal friends were safe, the lack of reliable information and communications breakdowns were the most stressful part."

> "Not knowing what was happening beyond what was on the news. Being told to remain indoors but not knowing the extent of the incident did not help me judge what actions I should take (i.e., if I should go about my normal routine). It was not clear to me after the first shootings that there were more shootings and continued cause of caution. This was not made clear (to me) until much later."

Three examples from student respondents receiving this code include the following:

> "I stressed about whether or not anyone I knew was involved."

> "Being on campus and not knowing what was going on when there were all the police and people running in panic."

> "Not knowing what actually happened in the first couple hours of the event, unable to contact friends."

Injured/Loss of life

The code, *Injured/Loss of life,* was the second most frequent code for faculty/staff; 72 faculty/staff received the code. *Injured/Loss of life* was the third most frequent for students; 186 students received the code. This code seemed to signify a sense of coming to terms with the reality of the situation. Responses included the loss of specific individuals (known well or not to the respondent or someone close to the respondent) and/or having to come to terms with the number of lives taken by the two shootings as stressful. Some respondents commented on the loss of "young" and/or the loss of "innocent" lives as being particularly stressful. Another common response included the fact that "so many" were killed and/or injured made the respondent realize not only the reality of the event but also the magnitude of the event; some respondents talked about having to come to terms with the fact that the shootings were on record as the worst college shootings in history and this was disturbing in its own right.

Three examples from faculty/staff respondents with this code include the following:

> "Losing a close family friend."
>
> "The fact that this event took place at the University which I dearly love and that people were murdered."
>
> "The amount of lives lost."

Three examples from student respondents who received this code include the following:

"Losing 32 of our fellow Hokies."[10]

"The fact that so many innocent people died at young ages."

"Losing my friend."

Media

The code, *Media*, was the third most frequent code for faculty/staff (65 received it) and the second most frequent code for students (282 received it). *Media* included all respondents who directly or indirectly found any type of media to be stressful (during and after) the shootings. However, media seemed to be more informational and helpful during the shootings and in the "immediate" aftermath to help provide information and catch viewers up to the facts and what had happened. After the shootings and the initial dissemination of information to viewers, it appears as though many respondents found media to be unhelpful, rude, and reckless. Responses sometimes included explanations such as "media coverage" but mostly contained detailed complaints about how the media were disrespectful, unprofessional, and/or insensitive.

Three instances from the faculty/staff respondents who received this code include the following:

"Seeing the media on campus all the time."

"April 16th was terrible for me because I was close enough to have been a probable victim yet had no clear understanding of the danger I was in until days later when the media outlined the path and extent of destruction. In the days following the feeling went from terrified hindsight to disgust at the glorified way the media was presenting the situation. For example, quoting statistics like number of bullets used was not at all the information I needed in the days following. Not to mention days went by without

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[10] The "Hokie" bird is the Virginia Tech mascot. A "Hokie" is a term students, alumni, and community members use to refer to themselves individually (I'm a "Hokie") as well as collectively (We are the "Hokie" nation).

confirmation of wounded and/or killed. Watching the TV for that information only exposed me to the unwanted statistics of how gruesome it actually was."

"When the morons in the media aired Cho's video manifesto."

Three instances from student respondents who received this code include the following:

"All the news coverage. They wouldn't leave us alone in order to cope with our loss. They were constantly putting cameras in our faces."

"The video of the killer."

"Seeing and hearing about the people who died in the tragedy on television or the Internet."

Emotions

The code, *Emotions*, was the fourth most frequent code for faculty/staff (59 faculty/staff) and the fifth most frequent code for students (110 students). Emotions included grief, fear, discomfort, sadness, disbelief, empathy/sympathy, anger/frustration, violation, worry/concern, and shock. Although helplessness is a type of feeling or emotion, it was separated out because it was consistently cited across both populations and occurred so frequently. Typically respondents described fear, helplessness, disbelief, shock, and worry about others before knowing whether they were safe, during the "immediate" aftermath. In the "delayed" aftermath, respondents cited anger, frustration, discomfort and disconnectedness, empathy and sympathy for victims and their families, and violation after becoming informed of all that transpired on the day of the shootings.

Three examples from faculty/staff respondents receiving this code include the following:

"The loss of normalcy, the loss of the "safe place" campus has always represented to me since I first came here as an undergrad more than 20

years ago, and the pain/sorrow/guilt when I think of those who lost their loved ones and the terror they victims felt in their last moments."

"The disbelief that this happened on our campus where faculty work hard with individual students."

"The feeling of personal failure."

Three examples from student respondents receiving this code include the following:

"Disbelief, shock, and the unimaginable horror for those in the Norris Hall classrooms."

"I was mostly in a state of shock during the day."

"Dealing with the grief of my friend being murdered and the constant reminders everywhere also hating someone for the first time (Cho)."

Helpless

The code, *Helpless,* was the fifth most frequent code for faculty/staff; 37 faculty/staff received this code, and, was the fourth most frequent for students (136 students received the code). *Helpless* includes responses with the word helpless, or, that describe helplessness. This particular code sometimes co-occurred with the code "not knowing." Respondents explain that being unable (or feeling unable) to do anything to help, fix, or make the situation better for others, themselves, or in general was stressful. Some respondents also point to being in lock down or not being able to leave their building, office, or space as stressful. The lack of control over aspects of the respondent's particular situation often led to descriptions or feelings of helplessness.

Three examples from faculty/staff respondents who received this code include the following:

"Feeling like there was nothing that I could do to help."

"Being off campus and feeling helpless."

"The feeling of helplessness. I work across campus from Norris, but in sight of West A-J, and my neighbor is in the Engineering Dept. It seemed so surreal being locked down and watching the events unfold on national TV and not being able to do anything."

Three examples from student respondents who received this code include the following:

"The most stressful part was not being able to move around campus. I was stuck across campus in a dorm room until the All Clear was given."

"The helplessness I felt. I was more concerned about my friend's pain than my own, and it bothered me greatly that my friends were in pain and I was unable to comfort them. I dealt with my own feelings later, immediately it was theirs that mattered."

"Not being able to contact all my friends and family to make sure everyone was okay.

Not stressed

The sixth and final code, *Not stressed,* was used to capture those who indicated they were not stressed or didn't feel stressed. However, this represented a very small portion of each dataset (three faculty/staff and five students). For example, one of the faculty/staff respondents said, "It was not personally stressful" while one of the student respondents said, "I wouldn't call it stressful."

General Faculty/Staff and Student Responses: Main Organizing Categories

The categories *During April 16* and *Aftermath* emerged as key general descriptions of stressors for both faculty/staff and students. These categories were crucial to understanding that for some individuals what was most stressful occurred during *April 16th* itself or what I call the "immediate aftermath" while for others what presented as most stressful came in the *Aftermath* or what I call the "delayed aftermath."   Still for

others, both the day of the tragedy *AND* the aftermath were stressful together. These categories are especially important because they paint an image of a spectrum or continuum of stress: on the one end of the spectrum were respondents who experienced neither (those who cited "not stressed"), either (those who described characteristics of April 16 itself, *OR*, those who described characteristics in the aftermath), and both (those who cited both April 16 *AND* the aftermath as stressful). Furthermore, the categories of During April 16 ("immediate aftermath") and Aftermath ("delayed aftermath") were especially important in contextualizing the different codes. Each of the five codes (excluding "not stressed") appear to be concentrated more so in one category than another; however, each code describes different types of stress depending on the category.

Below Figure 6 shows 93 faculty/staff, or 30%, identified the "immediate" aftermath as stressful and 142 faculty/staff, or 46%, identified the "delayed" aftermath as stressful.

Figure 6: Faculty/Staff Organizing Categories.
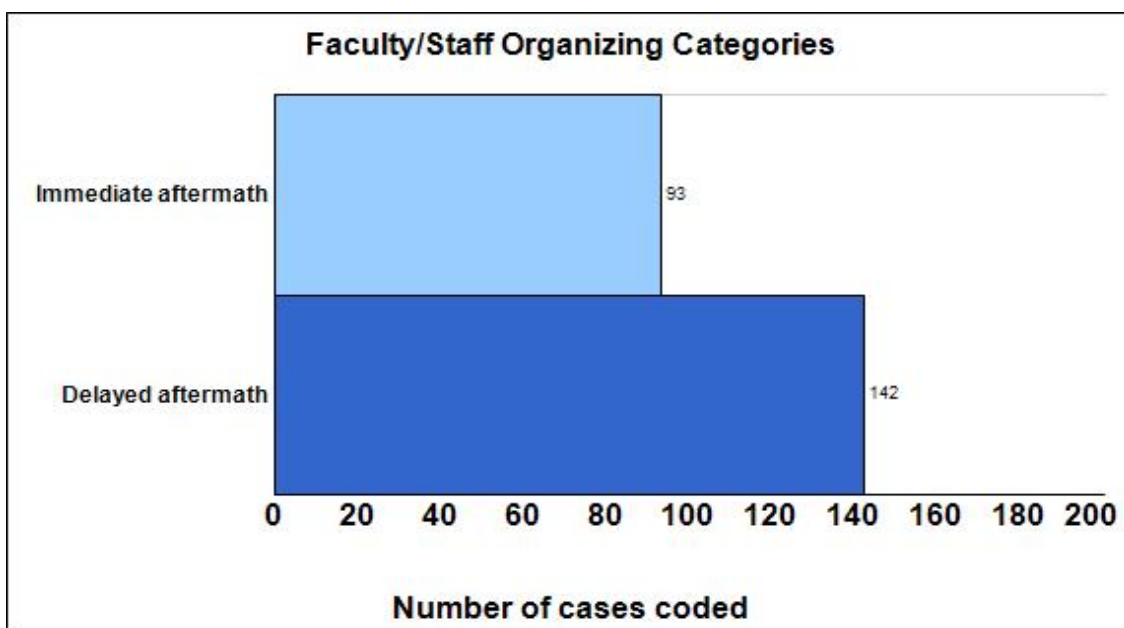
Figure 7, below, shows 353 students, or 37%, cited the "immediate" aftermath as stressful while 401 students, or approximately 43%, cited the "delayed" aftermath as stressful.

Figure 7: Student Organizing Categories.
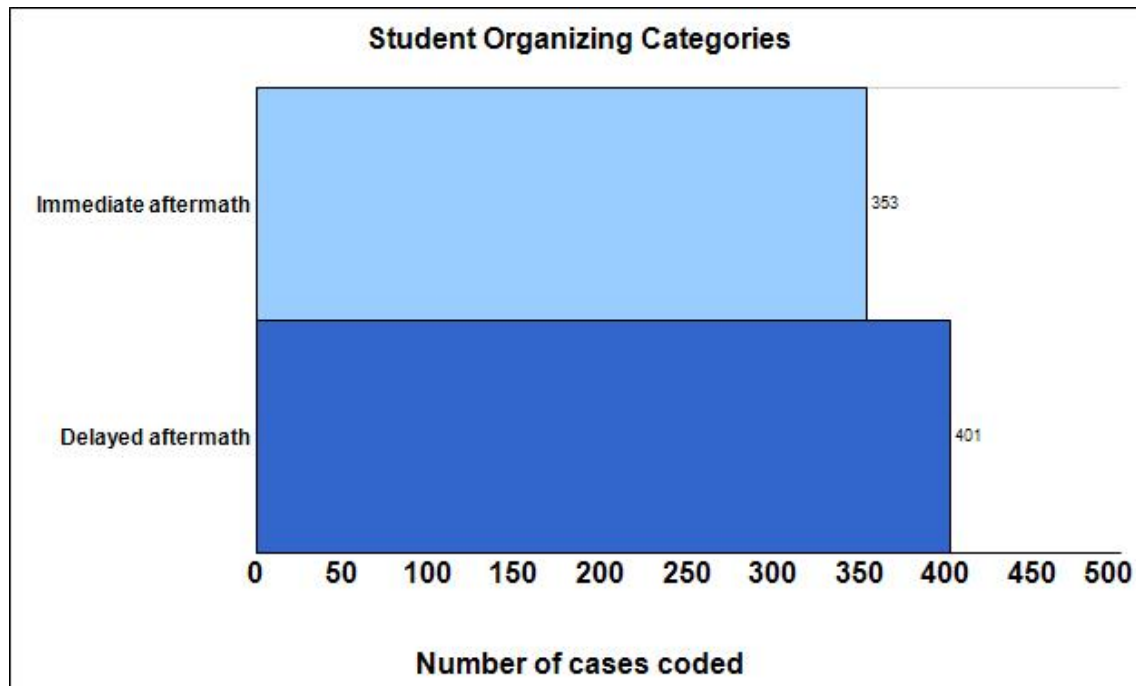
I next turn to explaining the "immediate" and "delayed" aftermath categories and specifically how the main codes fit into each category.

During April 16th (Immediate Aftermath)

The "immediate" aftermath is a time period that includes both shooting events (West Ambler Johnston and Norris Halls) and directly after the shootings but before all information was known to the community. Respondents who cite the "immediate" aftermath as stressful discuss all the stress codes differently than during the "delayed" aftermath. Although all five codes were cited during the immediate aftermath, the codes *Not knowing* and *Helpless* were more prevalent. The code *Emotions*, although present in

the "immediate" aftermath included different emotions than those in the "delayed" aftermath. Below I delineate and explain each code and the corresponding responses.

 "**Not knowing**" was cited as stressful when respondents did not know what was happening, who was hurt or killed, or what should be done.

"**Helpless**" was used by respondents to describe feeling unable to do anything and/or having to be locked down without direction.

"**Emotions**" occurred in the "immediate" aftermath but were different from the "delayed" aftermath. During April 16, or the "immediate" aftermath, emotions cited were fear, disconnection, worry/concern, shock and disbelief.

Two codes were not as prevalent during April 16th ("immediate" aftermath) but occurred more so in the "delayed" aftermath: media and injury/loss of life. When "media" was cited during the "immediate" aftermath it was because information presented was rumor or uncertain. In general, however, during the "immediate" aftermath, respondents often talked of being grateful for information from media sources because without it they generally were unaware of what was going on. This gratitude and positive sentiment changes in the "delayed" aftermath (I discuss this further in the next section). "Injury and loss of life" is also cited as stressful in the "immediate" aftermath; however, because so little was known in the "immediate" aftermath, some respondents did not learn or realize the number of casualties and injuries until the "delayed" aftermath period. As a result, when this code is cited in the "immediate" aftermath, respondents talk about loss of life or injury in general as being stressful. In the "delayed" aftermath, this code changes (I discuss this further below). At times, respondents talk about learning

of the number of deaths as shocking because they previously had only heard of the dorm

shootings (West AJ Hall) where one or two students were involved at most.

Aftermath (Delayed Aftermath)

The "delayed" aftermath entails the time when information about the timeline of

events and the identities of victims and shooter became known. The "delayed" aftermath

also included trying to return to the way things were before the shootings (including

emotions, duties, responsibilities, work, and others). It is difficult to pinpoint exactly

when this time period begins although it should be stated that the identities of victims

were not released until two days after the shootings (Wednesday April 18, 2007).

Although again all five codes were present, the codes *Media* and *Injury and loss of life*

were the most prevalent. The code *Emotions*, as during the "immediate" aftermath, was

also present but included different emotions than those in the "immediate" aftermath.

Below I delineate the codes and corresponding responses.

"**Media**" were cited as stressful for attacking the school, school officials, and the

community; for being unprofessional; for calling the shootings a "massacre;" and for

seeming to be more concerned about ratings or agendas than reporting news or taking

members of the community and their feelings into consideration. Compared to the

"immediate" aftermath, the "delayed" aftermath regarding *Media* was completely

different and included opposite responses and reactions. Anger, frustration, disgust, and

other emotions were directed at "the media." At times respondents listed "the media"

solely as the most stressful consequence or part of the shootings. Faculty/staff and

students also at times compared the media to "vultures" and "buzzards." There were

even respondents who described their experience with media as equivalent to having been "violated."

"**Injury and loss of life**" was also especially prevalent in the "delayed" aftermath as a stressor. Specifically, learning or hearing the number of those injured and killed appeared to indicate the reality of the tragedy—respondents talk about the death count and the realization that so many injured and killed forced them to confront the reality of such a terrible tragedy having taken place.

"**Emotions**" in the "delayed" aftermath were different from those in the "immediate" aftermath and included grief, sadness, discomfort with constant reminders, empathy and sympathy for victims and families, anger and frustration and a feeling of violation.

Although "Not knowing" and "Helpless" were more prevalent in the "immediate" aftermath, they were also seen in the "delayed" aftermath. When respondents said, "Not knowing" was stressful in the "delayed" aftermath, this included not knowing why the shooter did what he did or why he chose the building he chose. There were also respondents who were stressed about not knowing why the shootings had to happen in their school, town, or community. "Helpless" included feeling unable to connect with the community either because of having to be out of town during the convocation and other events, or not feeling able to help colleagues, peers, and friends to cope with the reality of the tragedy. There were respondents who cited inability to prevent the tragedy or to prevent the association of the shootings with the school and community from henceforth. Some respondents also talked about thinking of "what if" scenarios and wondering what

might have happened had anything been different from what actually happened. Figure 8

illustrates how various codes fit within the two organizing categories.

Figure 8: Qualitative Results: Codes and Categories.

During April 16 ("Immediate" Aftermath):	*After April 16 ("Delayed" Aftermath):*
Includes the time during and directly after the shootings but before all information about shootings was known to the community.	Includes the time when information about the timeline of events and the identities of victims and shooter become known, after the shootings were over and information became known.
NOT KNOWING[11] Not knowing what was going on, who was hurt and/or killed, and not knowing what to do.	**not knowing** Not knowing why the shooter did what he did, why he chose the buildings he chose, and why he did this act in this school, community, and town.
HELPLESS Feeling unable to do anything, having to be locked down (or kept away) without any direction or guidance.	**helpless** Feeling unable to connect to the community (not being there and/or being unable to help others cope), not being able to prevent the association of the shootings with the school and its reputation from now on, and not being able to prevent the 'what if' questions and/or scenarios.
EMOTIONS Fear, disconnection, worry/concern, shock, disbelief.	**EMOTIONS** Anger, frustration, disgust, grief, sadness, discomfort, sympathy/empathy, feeling violated.
media Grateful for information but concerned over uncertainty or information and/or rumors being reported.	**MEDIA** Media attacking school officials and members of the community, unprofessional media behavior, insensitivity, lack of concern traded in for agenda setting and/or ratings. Comparisons to being "violated" and media were like "buzzards" and "vultures."
injury/loss of life Injury and/or loss of life in general, learning of the jump in casualties from a small number to a larger number in a short period of time.	**INJURY/LOSS OF LIFE** Learning of the final number of individuals injured and/or killed, the signaling of the sheer magnitude and reality of the tragedy.

THEME: Powerlessness and/or lack of control both during and after April 16, 2007.

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[11] Codes in **BOLD** and all CAPS were most prominent in the organizing category listed. Codes in lower case font and not bolded were present in the organizing category but less so and with different meanings. Emotions were present in both categories but included different emotions depending on the category.

General Faculty/Staff and Student Responses by Sex/Gender

Another general observation across faculty/staff and students included the fact that males and females had differences in number of times citing stressors, and, approaches to how they talked about those stressors. I first discuss differences by sex observed in faculty/staff and then discuss differences by sex observed in students.

Faculty/Staff

In Figure 9, faculty/staff fitting the two organizing categories ("immediate" aftermath and "delayed" aftermath) are presented by sex (females are presented in red while males are presented in blue). Female faculty/staff (57) were more likely to cite the "immediate" aftermath as stressful compared to their male peers (36). Women faculty/staff (84) were also more likely to cite the "delayed" aftermath as more stressful than men faculty/staff (57).

Figure 9: Faculty/Staff Organizing Categories by Sex.
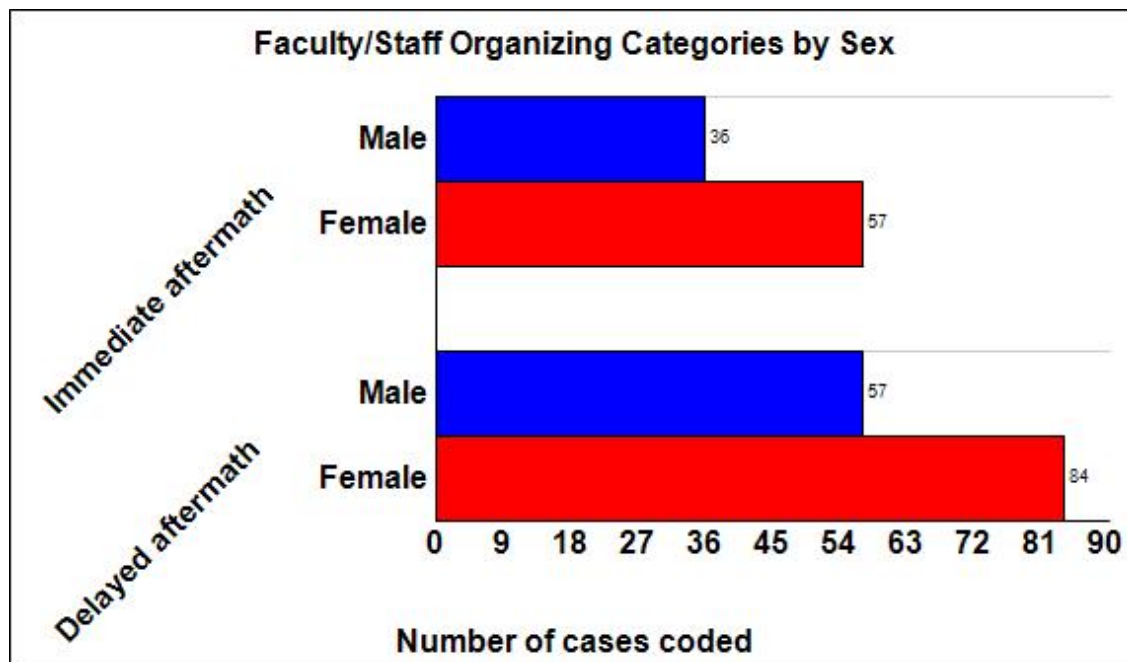
Faculty/Staff and the "Immediate" Aftermath

Both male and female faculty/staff talk about similar things during the April 16th shootings ("immediate" aftermath) as stressful. Namely, not knowing what was going on and also feeling helpless emerged time and again for both groups. However, women talked more about the "waiting" aspect of not knowing as being stressful whereas men talked more about not knowing information or not knowing what to do next as stressful.

Both male and female faculty/staff talk about feeling helpless. When men used the word "helpless," however, they appeared to be describing the inability to move from a locked down position, or, being unable to determine what action to take next. Women, on the other hand, talked about being "helpless" in terms of inability to comfort others and inability to verify the safety of others. Although occasionally men would cite concern or worry for others and empathy or sympathy for victims and families of victims, and women at times cited the inability to move from "lockdown" or watching/witnessing activity from a distance as stressful, generally speaking male and female faculty/staff held to the patterns indicated above.

Faculty/Staff and the "Delayed" Aftermath

Both men and women faculty/staff describe a diverse array of stressors in the "delayed" aftermath. They cite the senselessness of the crime, the reality of the event having taken place in a seemingly safe place, the interruption of regular life and work, the pain of the loss to the community and school, the strain on the larger community, and the expectation to continue to work as part of their roles within the university.

In particular, both male and female faculty/staff discuss having to continue on with their respective roles (as faculty or staff members) as stressful. Specifically

faculty/staff mentioned trying to figure out how to "prepare" or return to business as usual when the students and classes resumed the following week. This was different from students who were not required to fulfill the same roles as faculty/staff and were given more options.

Male and female faculty/staff also talk about their concern for students and for others in general (particularly the families of the victims and those with injuries). Although both men and women faculty/staff mention their own children and students, female faculty/staff describe their concerns about their own children and students more so than male faculty/staff specifically in regard to the adjustment to the new reality of having experienced such a horrific tragedy in the community.

Media are cited as particularly stressful for both male and female faculty/staff especially because of the airing of content (writings, videos, and other information) sent by the shooter, and, the negative attention directed toward the school and community because of the shootings.

Another shared stressor included learning facts of the shootings afterward and how this brought emotions of frustration and anger. Although both men and women faculty/staff mention this, it was more common for male faculty/staff to cite anger and frustration.

Students

In Figure 10, below, students fitting the two organizing categories ("immediate" aftermath and "delayed" aftermath) are presented by sex. Female students (210) were more likely to cite the immediate aftermath as stressful compared to male students (143). Female students (236) were also more likely to cite the delayed aftermath as more

stressful than male students (165). Females are presented in red and males are presented in blue.

Figure 10: Student Organizing Categories by Sex.
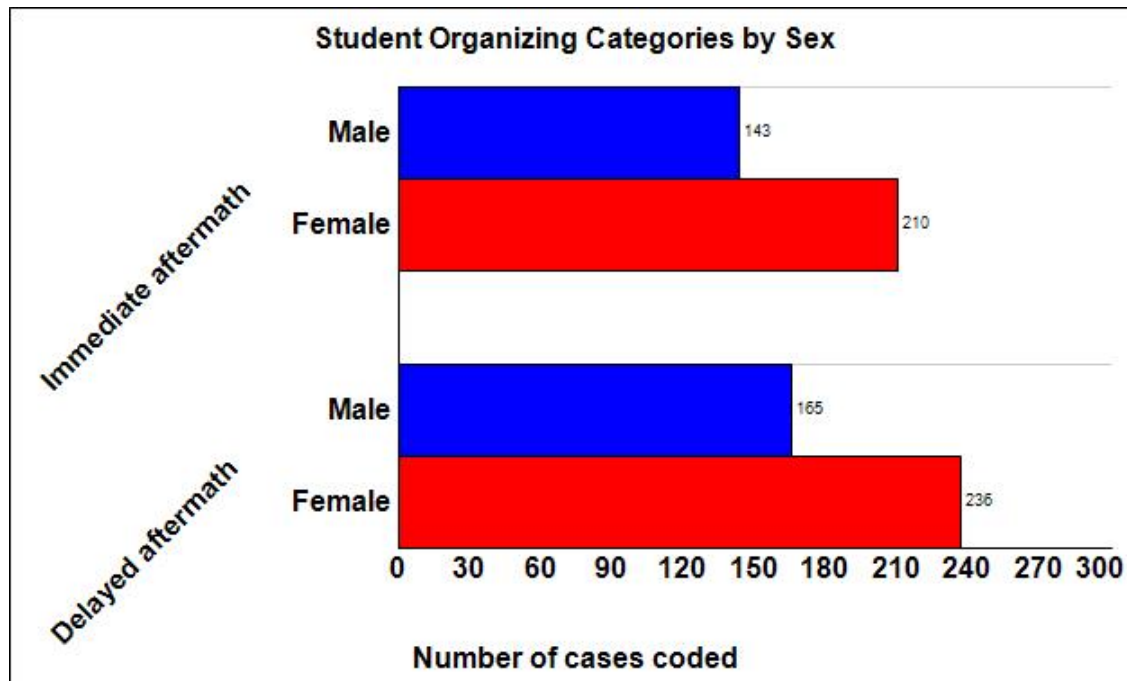
Students and the "Immediate" Aftermath

When it comes to the day of April 16th ("immediate" aftermath), students cite a myriad of stressors. Men and women both cite not knowing what was going on, who was injured or killed, and what would happen with the rest of the semester as stressful. Male and female students also cited the number of fatalities increasing throughout the day as stressful, although men appeared to mention this more so than women. Both males and females also talk about the role of the media as stressful because media were not reporting information, lacked new information, or, were critical of the school and administrators; this behavior was perceived as a direct attack on the community.

Both males and females also talk about the communication breakdown of cell towers and how they felt 'helpless' in being unable to get through to contact family and

friends to let them know they were safe and/or confirm the safety of others. A sense of helplessness also comes through in being unable to console others. One noticeable difference also included more male students identifying as having been in Norris Hall where the second shootings took place.

Students and the "Delayed" Aftermath

For students, the "delayed" aftermath also included a variety of stressful responses. Males and females cited not knowing what was going to happen with the end of the semester as stressful although males tended to mention this more often than females. Media were heavily cited as stressful for both male and female students although male students tended to talk about the negative impact of the media more so than females. In addition, male students mentioned that having outsiders (media, family or friends or strangers who did not attend VT or those not part of the community) question, ask about, or want to discuss the tragedy was especially stressful. Although some females mentioned this, it surfaced more with male students.

Both male and female students also talked about the stress of the question "what if?" or "why not me?" In particular, for those who overslept, or, should have been in school or class but were not for various reasons these were stressful questions. But these questions were also raised by students in buildings near the shootings, or, were musings in general that had the shooter decided to conduct the shootings in a different place, they (or loved ones and friends) might have died or been injured. Some male and female students also talk about the student victims being "normal" students just like them; this seemed to intensify the stress or drive home the reality that the situation of where the shootings happened and when could have been different and affected them more directly.

Faculty/Staff and Student Open Codes by Sex/Gender

Figure 11 shows the number of faculty/staff receiving the open main codes by sex. As with the organizing categories, women, compared to men faculty/staff, were more likely to cite the main codes as stressful (the one exception being "no stress").

Figure 11: Faculty/Staff Open Codes by Sex.
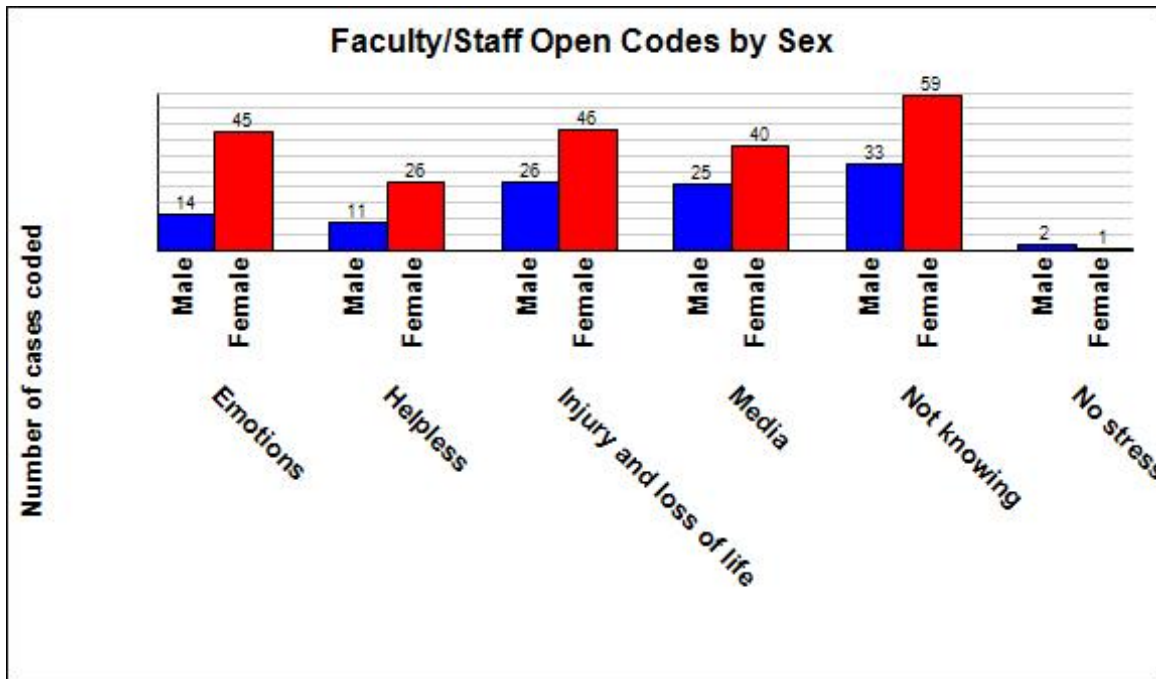
Figure 12 illustrates the number students by sex receiving the main codes. Like faculty/staff, female students compared to their male peers, were more likely to cite all the main codes as stressful with two exceptions: "injured/loss of life" and "no stress"). Below I delineate each code and its rank by sex for faculty/staff and then by sex for students.

Figure 12: Student Open Codes by Sex.
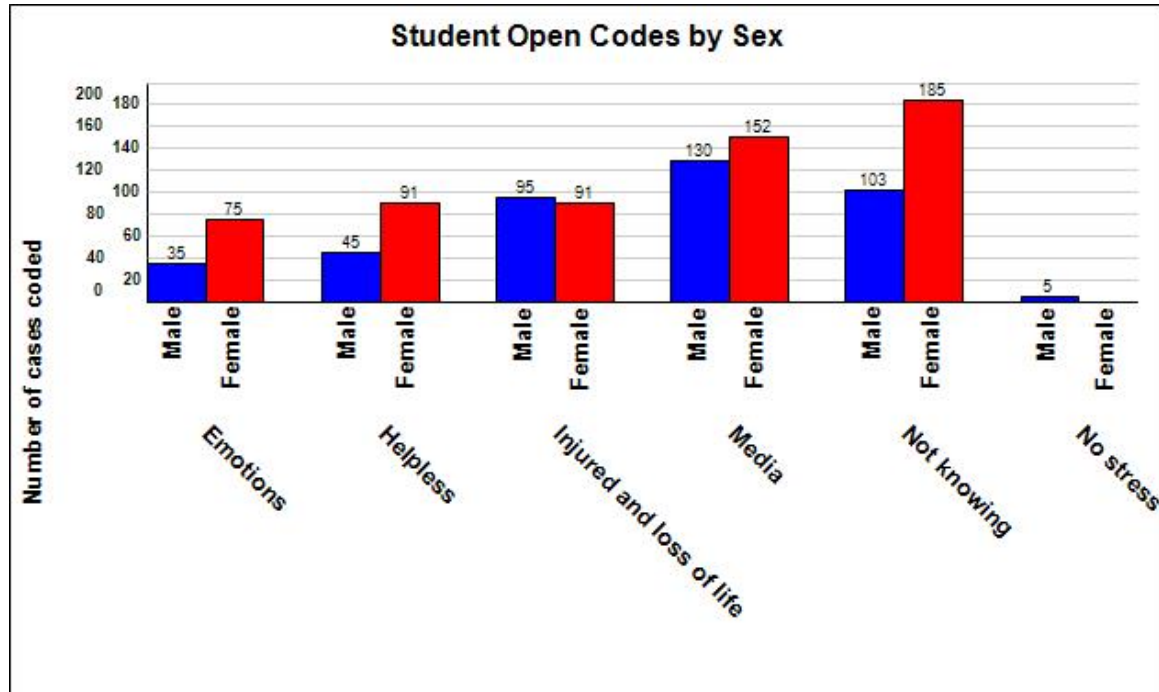
The code, *Not knowing,* was the most frequent code for male (33) and female

faculty/staff and for female students (185). Male students (103), however, cited *Not*

knowing as the second most frequent stressor.

Of the five main codes, 59 female faculty/staff cited "not knowing" as the most

stressful. Female faculty/staff talked about *not knowing* if the shootings were over

irrespective of being in lock down or at home, *not knowing* what was going on as the

shootings were occurring, *not knowing* who was involved (injured, dead, and whether

they knew anyone, *not knowing* whether their children and/or students were safe or okay,

and *not knowing* how to interact with students who would be returning the following

week to classes, or, how to help in general after this tragic event. Female faculty/staff

also tended to talk about having to 'wait' and this waiting was distressing.

Like female faculty/staff, of the five main codes, 33 male faculty/staff also cited

"not knowing" as the most stressful. Male faculty/staff talked about *not knowing* who

was dead, injured, involved and whether the shooter was captured when released from lockdown, *not knowing* what was going on as the events were going on—in particular *not knowing* information earlier regarding the first shootings. Male faculty/staff, like their female counterparts, were also stressed by *not knowing* whether their own spouses, children, friends and students were safe or okay.

As with faculty/staff, 185 female students cited *not knowing* as the most stressful of the main codes. Female students talked about *not knowing* who was injured or killed as stressful and in particular cited "waiting" for the list of names of those killed. In addition, *not knowing* whether roommates, classmates, family members, and students (in the case of graduate student instructors) were safe or okay was stressful, but in particular *not knowing* about the safety friends was the most frequently cited group. Female students also said *not knowing* what was going on as the shootings occurred, *not knowing* about earlier information on the first shootings, *not knowing* how to feel or respond, and *not knowing* what would come next regarding school and the academic year as stressful. Afterward, several female students talked about *not knowing* why someone would do such a thing (conduct the shooting) and *not knowing* why they were "lucky" to be spared and/or not have lost family/friends as stressful.

Contrary to faculty/staff and female students, 103 male students ranked not knowing as the second most stressful code of the five main codes. They said *not knowing* whether friends or loved ones were involved was stressful—in particular, male students emphasized the tracking down of friends to make sure they were okay was stressful. With the exception of one male student, male students generally did not talk about "waiting" as being stressful. Male students also talked about *not knowing* what was

happening as it was happening, *not knowing* how to respond, what to say, how to act, and what to do, *not knowing* what was going to happen at the end of the semester with regard to classes and academic plans, *not knowing* why or how someone could do such a thing (these shootings), and *not knowing* information earlier as stressful.

The code, *Injured/Loss of life,* was the second most frequent code for faculty/staff both male and female alike. This code tied for third most frequent for female students and was also ranked the third most frequent code for male students. Across both faculty/staff and students, as well as males and female, loss of life in particular and injury as well, signaled the magnitude of the tragedy and therefore made it particularly stressful.

When it comes to injury/loss of life, 26 male faculty/staff and 46 female faculty/staff cited the number of lives lost to be stressful. While faculty/staff who had a personal connection or tie to students, colleagues, friends, or loved ones killed or injured and said this was stressful, faculty/staff without direct connections cited the *loss* of so many young lives in general as stressful—at times including the adjective "needless" or "senseless." Male and female faculty/staff also emphasized the *number* of lives lost, and in particular hearing the number *lost* jump from one or two deaths to twenty or more as stressful. A few faculty/staff mentioned having to talk with families of those *injured* or killed, and/or attending funerals of those *killed* as stressful. For those faculty/staff (male and female) present in Norris, the sound of gunshots was stressful because it meant actual students and faculty were *killed* as a direct result of those shots. In a similar vein, seeing dead bodies or various states of *injury* was stressful.

Regarding students, 95 males and 91 females cited *loss of life or injury* as stressful. Students who personally lost a friend, classmate, or teacher, or knew someone

who was injured cited *injury/loss of life* as stressful–at times even including name of the person killed and/or injured. For students who did not experience direct personal loss, they cited *injury/loss of life* as stressful because they were helping others: friends who lost friends or loved ones, or, friends/loved ones who experienced loss and were trying to come to terms with injuries. Attending funerals was also mentioned as stressful.

As with faculty/staff, students who did not experience direct loss and who did not have friend(s) who experienced loss, *loss of life or injury* in general was stressful because it meant a *loss* to the greater community or the "Hokie" family and was therefore a *loss* to them. Students also cited *injury/loss of life* because the rising death counts from media, and/or learning specific details of the dead was stressful. In particular the rising death counts were seen as shocking because previously the community had been told the first shooting incident involved two students. To go from two deaths to over 30 was sudden and was stressful for both male and female students. Additionally, male and female students talked about the fact that students were "innocent" and just doing what students are supposed to do (go to class); this was stressful in that they were just like them (the student respondents). Similar to faculty/staff who had been in Norris Hall (the classroom), students who were in Norris Hall or West AJ (the dorm), cited *injury/loss of life* because of witnessing death, hearing death, or knowing that injury and death was likely happening was stressful.

The code, *Media*, was the third most frequent code for male faculty/staff and the fourth for female faculty/staff. This code was the second most frequent code for female students and the top code for male students.

Forty female faculty/staff identified the *media* as stressful; they were upset by learning details of the shootings (especially since they had not yet been told by the university about the updated death count or information). Female faculty/staff also cited the negative *media* reporting of decisions made by university officials and the subsequent second-guessing of those decisions by various media outlets was stressful. Female faculty/staff used phrases like "media buzzards" to describe these reporting behaviors or tactics, or that media were "bullying" colleagues in interviews or in portrayals, and that a media "circus" was created because of all of the media presence and attention on campus. In particular, for some faculty/staff females the release of the killer's video and pictures by media networks (like NBC) was stressful. Female faculty/staff also admitted that some watched too much news coverage and that this was stressful.

Twenty-five male faculty/staff said too much press coverage, learning information from *media* as to how many were killed and details of what had happened, and having to see the shooter's "manifesto" and other materials was stressful. Male faculty/staff also said the fact that *media* were quick to point fingers at the university and the university's officials to second guess their decisions, blame them, and for being "insensitive" were also stressful. Similar to female faculty/staff, male faculty/staff described the *media* with as "parasites" who were playing a "blame game" and should be "fired" for being so insensitive and "gruesome."

Male and female students also cited the media as stressful. In fact, of the main codes, male students (130) ranked media as the number one stressor. Female students (152) ranked media as the second most stressful. Both male and female students said that too much press and *media* on campus and the coverage were stressful. Students were

also stressed by having cameras everywhere and the 'setting up' of students to try to get them to lay blame on the school or school officials. Male and female students likened the media to having animal qualities. Like female faculty/staff, male students talked about a "media circus" and media were "bees to honey" with the students and community members as honey. Female students, like female faculty/staff, also likened media to "vultures" in their behavior to get a story at any cost, or, to lay blame wherever possible (except with the shooter). Both male and female students talked about being "hounded" and harassed for news stories or content to raise ratings. Both male and female students also talked about the insensitivity, inappropriateness, and disrespect of *media* and the failure to focus or center on the hurting community instead of the shooter who got his desired attention through release of the manifesto, video, and pictures. Male and female students alike found the release of the shooter's content and the airing of it on national and other media outlets to be stressful. It seemed as though the attacks by *media* of the university and university officials felt personally directed at both male and female students.

The code, *Emotions*, was the third most frequent code for female faculty/staff and the fourth for male faculty/staff. This was the fourth most frequent code for female students and the fifth for male students.

The third most frequent code for female faculty/staff was emotions. Forty-five female faculty/staff cited the experiencing of a range of emotions including fear, terror, sympathy/empathy, sadness, disbelief, anger, disconnectedness, worry, and concern as stressful. For the most part, female faculty/staff focused on sympathy/empathy for the loved ones of those who were injured or killed and for the victims as they were

experiencing the shootings. Another focus was worry and concern for others including their own loved ones such as spouses and children, colleagues, students, and others. Finally, female faculty/staff also expressed fear or terror during the shootings, and disbelief or shock in learning about the details including the number killed and injured. One female faculty/staff respondent talked about feeling disconnected from others, one talked about anger over the shootings, one talked about anxiety afterward, and others talked about sorrow or sadness in learning more information about the shootings and victims. Two female faculty/staff respondents used strong emotional language such as feeling "violated" by the shootings and being "vulnerable" after having experienced the shootings directly.

Fourteen male faculty/staff cited emotions as stressful but were different from female faculty/staff in that they primarily focused on sympathy/empathy for the family and loved ones of those killed and injured. Emotions included worry or concern over students or others; being in disbelief of the shootings; and anger or frustration that this tragedy had been allowed to happen or at the way it was handled by those in power. One male faculty/staff respondent mentioned survivor guilt for not being on campus at the time of the shootings, and one male faculty/staff talked about feeling "personal failure."

Of the main codes, 75 female students cited emotions as the fourth most stressful. Like faculty/staff, students expressed a diverse range of emotions. Female students talked about being afraid or fearful that they might know someone injured or killed, fear of confronting a second shooter, or fear in general in the environment during and after the shootings. Like faculty/staff males, female students talked of sympathy and empathy for victims and their families. Additional emotions expressed by female students included

sadness and feeling grateful, or even lucky, to be alive and not have been present when the shootings took place. Several female students were angry or "pissed off" especially with the media. Female students also expressed worry or concern about the safety of friends, family, or their students (in the case of graduate student instructors). Female students talked about feeling guilty for feeling upset when they didn't know anyone injured or killed. Like female faculty/staff, two female students used particularly strong language to describe their emotions. One female student said she felt "robbed" by the shootings and one female expressed a feeling of "violation" because of the shootings. Shock and disbelief were other emotions expressed.

Of the five main codes, 35 male students cited emotions as the fifth most stressful. Male students also experienced a range of emotions including: shock, disbelief, sadness, anger, guilt, sympathy and empathy. Several students felt concern or worry for friends or students (in the case of graduate instructors), fear, and being disconnected from the events because of having to work elsewhere. Two male students talked about the overwhelming amount of feelings, or, having complicated feelings and emotions to deal with.

The code, *Helpless,* was the fifth most frequent code for faculty/staff. This code tied for third most frequent with *Injured/Loss of life* for female students and was the fourth most frequent for male students.

Of the five main codes, 26 female faculty/staff members talked about feeling helpless when they could not contact friends, co-workers, or family members to confirm their safety. Female faculty/staff also talked about feeling helpless or unable to help in any way during the shootings. Being in lockdown or having to do something job related

made some female faculty/staff feel helpless because they were unable to "work through" the events, or, because they were having to help others through emotions and were therefore were unable to focus on their own needs. Other female faculty/staff talked about the opposite—*not* being on campus to help others cope or to be together to comfort one another and be there for one another was stressful. Female faculty/staff also cited not being able to make contact or communicate with others as stressful. For one female faculty/staff not having the ability to conceal carry a weapon for protection was stressful.

Eleven male faculty/staff found feeling helpless stressful. Male faculty/staff talked about being "stuck" in lockdown or off campus and unable to help others as stressful. Feeling as though there was no way to help or to make the situation better, or being close to the building of the shootings but still unable to help, also made male faculty/staff feel helpless. One male faculty/staff talked about being unable to reach his children quickly and that was stressful.

Ninety-one female students and 45 male students talked about feeling helpless as stressful. In particular, not being able to contact friends, family, or loved ones was stressful. This often co-occurred with "not knowing" but was different in that not knowing what is going on means one lacks information or verification. However, being unable to make contact or being forced to do, or not do, something seems to hint at a type of helplessness—a lack of choice. Female students talked about not being able to make sense of what had happened, to accept that this was reality, or to understand why the shooter did what he did. Male students talked about not being able to help or fix the situation or to make things better.

Both male and female students also talked about not being able to help others cope, or, feeling helpless themselves. Both female and male students sometimes mentioned feeling unable to escape the tragedy either because it was always present in media, or, someone was always talking about it or asking about it. Both male and female students also used the word "trying" often as in 'trying' to track down people to verify safety or 'trying' to make contact with others. Female and male students also talked about "having" to listen to the media or "having" to continue on with their leadership roles or duties or responsibilities instead of dealing solely with the tragedy at hand. Sometimes these respondents were also off campus and unable to be with other friends or colleagues and that was stressful. Again, the use of words or phrases such as 'trying' and in particular 'being unable' and 'having to' seem to symbolize helplessness, powerlessness and/or lack of control.

In Table 11, the main stress reactions are included with a breakdown of each code by sex and percent of sample by sex. The two organizing categories are also included by sex and percent of sample by sex.

Table 11: Faculty/Staff and Student Open Codes by Sex/Gender.

	Female Faculty/Staff N=181	% Female F/S	Male Faculty/Staff N=124	% Male F/S	Female Students N=522	% Female Students	Male Students N=421	% Male Students
MAIN CODES								
Not Knowing	59	32.6%	33	26.6%	185	35.4%	103	24.5%
Injured/ Loss of life	46	24.4%	26	21.0%	91	17.4%	94	22.3%
Emotions	44	24.3%	14	11.3%	75	14.4%	34	8.1%
Media	40	22.1%	25	20.2%	152	29.1%	130	30.9%
Helpless	26	14.4%	11	8.9%	91	17.4%	45	10.7%
CATEGORIES								
("Delayed") Aftermath	84	46.4%	57	46.0%	236	45.2%	165	39.2%
("Immediate") During April 16	57	31.5%	36	29.0%	210	40.2%	143	34.0%
Not stressed	1		2		0		5	

In sum, the general stressors of faculty/staff and student respondents on April 16, 2007 were similar in some ways and different in others. Specifically, in the "immediate" aftermath faculty/staff and students cited *not knowing* and *helpless* codes. Only students cited *media* as stressful in the "immediate" aftermath. In the "delayed" aftermath both faculty/staff and students cited *media* as stressful however, faculty/staff talked about *helplessness* as stressful in the "delayed" aftermath while students talked about *not knowing* as stressful.

In the "immediate" aftermath, faculty/staff and students were stressed by *not knowing* what was going on and feeling *helpless*. Female faculty/staff were particularly stressed by having to "wait" while not knowing what was going on and male faculty/staff were stressed because they did not information on what was going on nor did they have direction on what to do. Male and female students said *not knowing* what was going on, who was injured or killed, and what would happen with the rest of the semester was stressful. Regarding helplessness, male faculty/staff described helplessness as the inability to move from lock down, or, being unable to help as stressful while female faculty/staff and male and female students described it as an inability to comfort others and/or verify others' safety.

Unlike faculty/staff, students cited media in the "immediate" aftermath as stressful because media were not reporting information, lacked new information, or, were critical of the school and administrators; this behavior was perceived as a direct attack. The number of fatalities increasing throughout the day was also stressful for both males and female students but was mentioned more often by males.

In the "delayed" aftermath, faculty/staff and students alike expressed discontent with the media. For faculty/staff females and males the *media* attention to content from the shooter, the negative attention directed at the school and community, and learning facts of the shootings afterward were especially stressful. Male and female students cited *media* as stressful although male students cited the negative impact of the media, and, having outsiders question, ask, or want to discuss the tragedy, as particularly stressful. Learning facts of shootings in the 'delayed' aftermath elicited emotions of frustration and anger particularly from male faculty/staff.

In the "delayed" aftermath, both male and female faculty/staff described a sense of *helplessness* because of having to continue on with their roles/jobs in the university. In particular "preparing" to return to "business as usual" the following week was seen as stressful. Male and female faculty/staff also expressed concern for students and for others in general (particularly the families of the victims and those with injuries). Female faculty/staff in particular described concerns about their own children and students more so than male faculty/staff.

Students, on the other hand, were stressed by *not knowing* what was going to happen with the end of the semester although males tended to mention this more often than females. Both male and female students also talked about the stress of the question "what if?" or "why not me?" particularly considering student victims were "normal" students just like them.

In the next chapter, I examine the results of the remaining three research questions in this research project.

—Chapter 6 RESULTS: CRITERION A, PROBABLE PTSD, SEX/GENDER, AND AGE/ROLE

In this chapter, I first examine bivariate relationships between probable PTSD and criterion A (including both quantitative and qualitative measures) from pre-determined codes discussed in Chapter 3. Probable PTSD was a measure that came from analyses of data from the survey questionnaire (discussed above in Chapter 3). In order to meet criterion A respondents had to fulfill criterion A from DSM-5 (2013). To meet criterion A1, respondents had to meet criterion A1 from DSM-IV-TR (2000). Those who were labeled with criterion A1 also included those with the label of criterion A since it was an expanded measure. To meet criterion A2 strict, respondents had to fulfill criterion A2 from DSM-IV-TR (2000); use of the words fear, helplessness, or horror and/or a synonym of those words counted as A2 strict. In order to meet criterion A2 expanded, respondents described or talked about fear, helplessness, and/or horror without using the exact words or synonyms, however, because it was an expanded definition, it also included those respondents from A2 strict.

After presenting all bivariate relationships between probable PTSD and various versions of criterion A (according to DSM-5 and DSM-IV-TR), I next examine the open-ended codes and compare the findings to those who have probable PTSD and those who do not have probable PTSD by sex (male and female). Finally I examine those with and without probable PTSD by age (using age categorized) and role (faculty/staff compared to students as well as classification/class category for students: freshman, sophomore, junior, senior, graduate student). Throughout this chapter, I answer the remaining research questions (2-5).

Bivariate Findings

First I examined faculty/staff with and without probable PTSD who also met criterion A of PTSD variously defined (e.g., A, A1, A2 strict, A2 expanded) using quantitative measures of criterion A (from DSM-IV-TR and DSM-5). Then, I looked at the faculty/staff using qualitative measures for criterion A. Next, I examined students with and without probable PTSD who also met criterion A—first using quantitative measures of criterion A and then using qualitative measures. After explaining the bivariate relationships, I answer the remaining research questions.

Faculty/Staff Meeting Criterion A

For faculty/staff I first examined respondents who met criterion A (DSM-5 and DSM-IV-TR) in the quantitative and qualitative data.

As seen in Table 12a, when looking at faculty/staff who met criterion A in the quantitative sample, 732 respondents, or 44%, qualified for criterion A strictly defined (DSM-5), 685 respondents, or 42%, qualified for criterion A1 and A2 strict (DSM-IV-TR) and 1270, or nearly 78%, qualified for criterion A1 and A2 expanded (DSM-IV-TR).

However, as also seen in Table 12a, when examining faculty/staff who met criterion A in the qualitative sample, very few respondents qualified for criterion A. In fact, less than five percent in each case qualified. Six faculty/staff, or two percent, met criterion A strictly defined, eight faculty/staff, or nearly three percent, met criterion A1 and A2 strict, and 13 faculty/staff, or four percent, met criterion A1 and A2 expanded.

Table 12a: Percent of Faculty/Staff Meeting Criterion A (DSM-5 and DSM-IV-TR) in Quantitative and Qualitative Data.

	Quantitative		Qualitative (N=306)[12]	
	Faculty/Staff	**% Sample**	**Faculty/Staff**	**% Sample**
Criterion A (DSM-5) (N=1659)	732	44.1%	6	2.0%
Criterion A1 and A2 Strict (DSM-IV-TR) (N=1632)	685	42.0%	8	2.6%
Criterion A1 and A2 Expanded (DSM-IV-TR) (N=1632)	1270	77.8%	13	4.2%

Faculty/Staff, Probable PTSD, and Criterion A in the Quantitative Data

Next, I examined faculty/staff with and without probable PTSD meeting criterion A in the quantitative data. Table 12b shows faculty/staff with probable PTSD, without probable PTSD, and with and without criterion A in the quantitative and qualitative data. Odds ratios are also presented.

When examining those respondents who met criterion A (DSM-5), 13.4% also had probable PTSD while nearly 86.6% did not. The odds ratio was 2.45 meaning that those meeting criterion A (DSM-5) are nearly 2.5 times more likely to have probable PTSD. This relationship was significant ($p \leq 0.001$).

Of those meeting criterion A1 and criterion A2 strict (DSM-IV-TR), 16.2% also had probable PTSD while 83.8% did not. The odds ratio was 4.39 meaning that those qualifying for criterion A1 and criterion A2 strict are four times more likely to have probable PTSD. This relationship was significant ($p \leq 0.001$).

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[12] One faculty/staff case had to be dropped between qualitative and quantitative analyses.

Of those meeting criterion A1 and criterion A2 expanded (DSM-IV-TR) 11.4%

also had probable PTSD, while 88.6% did not. The odds ratio was 7.65 meaning that

those meeting criterion A1 and criterion A2 expanded are seven times more likely to have

probable PTSD. This relationship was significant ($p \leq 0.001$).

Table 12b: Percent of Faculty/Staff with Probable PTSD by Criterion A (DSM-5 and DSM-IV-TR) Determined Quantitatively and Qualitatively.

Quantitative Pre-Determined				**Qualitative Pre-Determined (N=306)**			
Probable PTSD	*Criterion A (DSM-5) (N=1659)*		**Odds Ratio**	**Probable PTSD**	*Criterion A (DSM-5)*		**Odds Ratio**
	No (927)	Yes (732)			No (300)	Yes (6)	
No (1506)	94.1	86.6	2.45***	No (274)	89.3	100	--
Yes (153)	5.9	13.4		Yes (32)	10.7	0	
Probable PTSD	*Criterion A1 and A2 strict (DSM-IV-TR) (N=1632)*		**Odds Ratio**	**Probable PTSD**	*Criterion A1 and A2 strict (DSM-IV-TR)*		**Odds Ratio**
	No (947)	Yes (685)			No (298)	Yes (8)	
No (1481)	95.8	83.8	4.39***	No (274)	89.6	87.5	1.23
Yes (151)	4.2	16.2		Yes (32)	10.4	12.5	
Probable PTSD	*Criterion A1 and A2 expanded (DSM-IV-TR) (N=1632)*		**Odds Ratio**	**Probable PTSD**	*Criterion A1 and A2 expanded (DSM-IV-TR)*		**Odds Ratio**
	No (362)	Yes (1270)			No (293)	Yes (13)	
No (1481)	98.3	88.6	7.65***	No (274)	89.4	92.3	0.704
Yes (151)	1.7	11.4		Yes (32)	10.6	7.7	

***$p \leq .001$
**$p \leq .01$
*$p \leq .05$

Faculty/Staff, Probable PTSD, and Criterion A in the Qualitative Data

I then looked at faculty/staff who met criterion A (DSM-5 and DSM-IV-TR) with

and without probable PTSD in the qualitative data.

As seen in Table 12b, of those who met criterion A (DSM-5), zero also had

probable PTSD while 100% did not have probable PTSD.

Of those meeting criterion A1 and criterion A2 strict (DSM-IV-TR), 12.5% also had probable PTSD while 87.5% did not. The odds ratio was 1.23 meaning that those who met criterion A1 and criterion A2 strict are slightly more likely to have probable PTSD. This relationship was *not* significant ($p > 0.05$).

Of those meeting criterion A1 and criterion A2 expanded (DSM-IV-TR), nearly 8% also had probable PTSD while 92.3% did not. The odds ratio was 2.27 meaning that those who qualified for criterion A1 and criterion A2 expanded are two times more likely to have probable PTSD. This relationship was not significant ($p > 0.05$).

Faculty/Staff Interactions by Sex

Regarding sex/gender, there were no significant interactions meaning that the exposures experienced by those who did not meet criterion A (DSM-5 and DSM-IV-TR) and who had probable PTSD were the same for women and men. However, because the samples were small, analyses lacked statistical power and likely led to an insignificant finding.

Faculty/Staff Interactions by Age

As with sex/gender, there were no significant interactions by age. In this case, exposures experienced by those who did not meet criterion A and who had probable PTSD were the same whether respondents were considered young or old. Age was dichotomized: young faculty/staff were ages 18-49, old faculty were ages 50 and older. There were not enough cases to further subdivide into more than two age categories. The dichotomy was determined by looking for the age of difference in likelihood of probable PTSD; the young group (those ages 18-49) had the higher rate.

Students Meeting Criterion A

For students I likewise examined respondents who met criterion A (DSM-5 and DSM-IV-TR) with and without probable PTSD in the quantitative and qualitative data.

As seen in Table 13a, when looking at students who met criterion A variously defined, 2924 respondents, or 63%, qualified for criterion A strictly defined (DSM-5), 2087 respondents, or 45%, qualified for criterion A1 and A2 strict (DSM-IV-TR) and, 4295 respondents, or 92.6% qualified for criterion A1 and A2 expanded (DSM-IV-TR).

As also seen in Table 13a, when examining students who met criterion A in the qualitative sample, few respondents qualified for criterion A. In fact, five percent or less in each case, qualified. Twenty-one students, or two percent, met criterion A strictly defined, 13 students, or one percent, met criterion A1 and A2 strict, and 49 students, or five percent, met criterion A1 and A2 expanded.

Table 13a: Percent of Students Meeting Criterion A (DSM-5 and DSM-IV-TR) in Quantitative and Qualitative Data.

	Quantitative (N=4639)		Qualitative (N=943)	
	Students	**% Sample**	**Students**	**% Sample**
Criterion A (DSM-5)	**2924**	**63.0%**	**21**	**2.0%**
Criterion A1 and A2 Strict (DSM-IV-TR)	**2087**	**45.0%**	**13**	**1.0%**
Criterion A1 and A2 Expanded (DSM-IV-TR)	**4295**	**92.6%**	**49**	**5.0%**

Students, Probable PTSD, and Criterion A in the Quantitative Data

Next, I examined students who met criterion A (DSM-5 and DSM-IV-TR) with and without probable PTSD in the qualitative data. Table 13b presents students with

probable PTSD, without probable PTSD, and with and without criterion A in the quantitative and qualitative data. Odds ratios are also presented.

When examining those who met criterion A (DSM-5) in Table 13b, 20% also had probable PTSD while nearly 80% did not. The odds ratio was 2.00 meaning that those meeting criterion A (DSM-5) are two times more likely to have probable PTSD. This relationship was significant ($p \leq 0.001$).

Of those meeting criterion A1 and criterion A2 strict (DSM-IV-TR), 25.5% also had probable PTSD while nearly 75% did not. The odds ratio was 3.19 meaning that those meeting criterion A1 and criterion A2 strict are three times more likely to have probable PTSD. This relationship was significant ($p \leq 0.001$).

Of those who met criterion A1 and criterion A2 expanded (DSM-IV-TR), 18% also had probable PTSD while 82% did not. The odds ratio was 4.87 meaning that those meeting criterion A1 and criterion A2 expanded are four times more likely to have probable PTSD. This relationship was significant ($p \leq 0.001$).

Table 13b: Percent of Students with Probable PTSD by Criterion A (DSM-5 and DSM-IV-TR) Determined Quantitatively and Qualitatively.

Quantitative Pre-Determined (N=4639)				Qualitative Pre-Determined (N=943)			
A (DSM-5)				*A (DSM-5)*			
Probable PTSD	**No (1715)**	**Yes (2924)**	**Odds Ratio**	**Probable PTSD**	**No (922)**	**Yes (21)**	**Odds Ratio**
No (3858)	88.8	79.9	2.00***	No (755)	80.6	57.1	3.11*
Yes (781)	11.2	20.1		Yes (188)	19.4	42.9	
Criterion A1 and A2 strict (DSM-IV-TR)				*Criterion A1 and A2 strict (DSM-IV-TR)*			
Probable PTSD	**No (2552)**	**Yes (2087)**	**Odds Ratio**	**Probable PTSD**	**No (930)**	**Yes (13)**	**Odds Ratio**
No (3858)	90.3	74.5	3.19***	No (755)	80.3	61.5	2.55
Yes (781)	9.7	25.5		Yes (188)	19.7	38.5	
Criterion A1 and A2 expanded (DSM-IV-TR)				*Criterion A1 and A2 expanded (DSM-IV-TR)*			
Probable PTSD	**No (394)**	**Yes (4245)**	**Odds Ratio**	**Probable PTSD**	**No (894)**	**Yes (49)**	**Odds Ratio**
No (3858)	95.7	82.0	4.87***	No (755)	81.0	63.3	2.50**
Yes (781)	4.3	18.0		Yes (188)	19.0	36.7	

***$p \leq .001$
**$p \leq .01$
*$p \leq .05$

Students, Probable PTSD, and Criterion A in the Qualitative Data

I then looked at students who met criterion A (DSM-5 and DSM-IV-TR) with and without probable PTSD in the qualitative data.

In Table 13b, when examining students who qualified for criterion A (DSM-5), nearly 43% also had probable PTSD while 57% did not. The odds ratio was 3.11 meaning that those qualifying for criterion A are three times more likely to have probable PTSD. This relationship was significant ($p \leq 0.05$).

Of those meeting criterion A1 and criterion A2 strict (DSM-IV-TR), 38.5% had probable PTSD while nearly 61.5% did not. The odds ratio was 2.55 meaning that those

meeting criterion A1 and criterion A2 strict are two and a half times more likely to have probable PTSD. This relationship was not significant (*p > 0.01*).

Of those who met criterion A1 and criterion A2 expanded, nearly 37% also had probable PTSD while 63.3% did not. The odds ratio was 2.50 meaning that those qualifying for criterion A1 and criterion A2 expanded are two and a half times more likely to have probable PTSD. This relationship was significant (*p ≤ 0.01*).

Student Interactions by Sex

As with faculty/staff, there were no significant interactions by sex/gender for the students meaning that the exposures experienced by those with probable PTSD who also did not meet criterion A (DSM-5 and DSM-IV-TR) were the same for male and female students. Again, as was the case with faculty/staff, small samples likely contributed to the insignificance of gender because of a lack of statistical power.

Student Interactions by Age

Similarly, there were no significant age interactions; exposures experienced by those who did not meet criterion A and who had probable PTSD were the same whether respondents were young or old. Age was dichotomized: young students fell between ages 18-24, older students included those aged 25 and up. As with faculty/staff, there were not enough cases to further subdivide into more than two age categories for students. The dichotomy was determined by looking for the age of difference in likelihood of probable PTSD; the young group (those ages 18-24) had the higher rate when compared to students 25 and older.

Criterion A and Probable PTSD Pre-Determined Quantitative and Qualitative Data

The above results are important for answering my second research question:

Q2. Is criterion A (A, A1, A2) necessary for a diagnosis of probable PTSD?

After examining the pre-determined quantitative and qualitative bivariate results above in Tables 12b and 13b, it became clear that criterion A (DSM-IV-TR and DSM-5) was not always necessary for a diagnosis of probable PTSD. In fact, I determined that when criterion A was measured quantitatively, most of the faculty/staff and students with probable PTSD met criterion A (DSM-IV-TR and DSM-5). However, when criterion A was measured qualitatively, most of the faculty/staff and students with probable PTSD did not meet criterion A.

The fact that there continues to be respondents across both the faculty/staff and student groups who meet probable PTSD but fail to meet criterion A (DSM-IV-TR and DSM-5) is problematic because criterion A is necessary in order to receive the diagnosis of PTSD. For example, in Table 12b, after examining the column percentages of the quantitative measures of criterion A, approximately 11-16% of faculty/staff respondents who met criterion A variously defined also had probable PTSD. However, when examining the row percentages (not shown) of those faculty/staff with probable PTSD, between 4-36% failed to meet any combination of criterion A. When criterion A was qualitatively measured, approximately 8-12.5% of faculty/staff respondents meeting some form of criterion A also had probable PTSD. However, 97-100% of faculty/staff with probable PTSD failed to meet any combination of criterion A (not shown in Table 12b).

A similar pattern is seen for students in Table 13b. For example, looking at quantitative measures of criterion A in the columns of the cross tabulations, between 18-25.5% of students who met criterion A also had probable PTSD. However, when

examining the row percentages (not shown), between 2-32% with probable PTSD failed to meet any combination of criterion A. When criterion A was operationalized qualitatively, approximately 37-43% of students meeting some definition of criterion A also had probable PTSD. Yet, 90-97% of the student respondents with probable PTSD failed to meet any definition of criterion A (not shown in Table 13b).

The fact that those with probable PTSD did not always meet criterion A (DSM-IV-TR and DSM-5) could be due to three factors. First, it could be that the measures used to determine criterion A were not robust enough. Second, it could be that there are not enough cases to properly examine these complex relationships. Finally, it is possible criterion A may not be as important in the determination of probable PTSD.

Criterion A and Probable PTSD Open Coding Qualitative Data

After examining the qualitative open-ended responses, as previously indicated, criterion A (DSM-IV-TR and DSM-5) was not always needed for a diagnosis of probable PTSD. This was true for both faculty/staff and for students.

Table 14 below includes the number of faculty/staff and students meeting criterion A variously defined with probable PTSD, the percent of faculty/staff and students with probable PTSD, and the percent of the total sample with probable PTSD.

As presented in Table 14, regarding faculty/staff, 34 faculty/staff, or 11%, from the faculty/staff sample qualified for probable PTSD. Of the 34 faculty/staff who met probable PTSD six respondents met criterion A (DSM-IV-TR and DSM-5), one met criterion A1 only, and 11 met criterion A2 only (from the qualitative open-ended responses). Sixteen faculty/staff, or 47%, of the 34 with probable PTSD did not meet criterion A.

Criterion A (DSM-IV-TR and DSM-5) was also not always needed for a

diagnosis of probable PTSD for student respondents. As also seen in Table 14, 20%, or

188 students, from the student sample qualified for probable PTSD. Of the 188 students

who met the quantitative probable PTSD, 23 students met criterion A (DSM-5 and DSM-

IV-TR), 32 students met criterion A1 only, and 69 students met criterion A2 only from

the qualitative open-ended responses. Seventy-seven students, or 41%, of the 188 with

probable PTSD did not meet any version of criterion A.

**Table 14: Faculty/Staff and Students with Probable PTSD and Criterion A
            Open-ended Qualitative Codes.**

	Faculty/Staff			**Students**		
	F/S with Probable PTSD	**% F/S Probable PTSD**	**% Total F/S Sample**	**Students with Probable PTSD**	**% Students with Probable PTSD**	**% Total Student Sample**
Meets Criterion A	6	1.76%		23	12.23%	
Meets A1 only	1	0.29%		19	10.10%	
Meets A2 only	11	32.35%	**11.07% (N=307)**	69	36.70%	**19.93% (N=943)**
Does not meet Criterion A	16	47.05%		77	40.95%	
Total Probable PTSD	**(N=34)**			**(N=188)**		

After finding that criterion A (measured both quantitatively and qualitatively) was

not always needed for probable PTSD for faculty/staff and students, determining what

stressful experiences might be linked to probable PTSD, but not criterion A, was the next

step. This was important in order to answer my third research question:

Q3. If criterion A was not necessary for a diagnosis of probable PTSD in all cases, what stressful experiences/responses/reactions (not conforming to criterion A) were linked to probable PTSD? How do they compare to the general responses?

This question was examined quantitatively and qualitatively for both faculty/staff

and students. I begin by examining faculty/staff and then examine student respondents.

Tables 12-14 delineate means testing of faculty/staff with probable PTSD as well as those

respondents who met, and failed to meet, each version of criterion A by direct and

indirect exposures. Tables 15-17 do the same but for students with probable PTSD, each

criterion A definition, and direct and indirect exposures.

Quantitative Analysis of Faculty/Staff Reactions Not Conforming to Criterion A

First, I looked at faculty/staff who met probable PTSD but did not meet any

variation of criterion A quantitatively. Next, I compared the proportions of those meeting

criterion A (DSM-IV-TR and DSM-5) to those not meeting criterion A and their indirect

stressful experiences and reactions that did not conform to criterion A. Third, I

qualitatively describe the responses, reactions, and experiences faculty/staff had that did

not conform to criterion A.

In Table 15, looking at faculty/staff with probable PTSD and comparing the

proportions of those who met criterion A (DSM-5) with those measured quantitatively

who did not meet criterion A, two relationships were significant.

Those faculty/staff meeting criterion A (DSM-5) who cited feeling helpless as

stressful were significantly different from those who did not meet criterion A ($p < 0.05$).

Although helplessness is considered part of criterion A2 (DSM-IV-TR), it was worth

including this finding because helplessness was not always cited as a stressor because for those directly exposed to the shootings. In fact, as discussed in Chapter 5, helplessness emerged as an important stressor both during and after the shootings although it tended to be cited during the "immediate" aftermath compared to the "delayed aftermath.

The other significant finding was for other emotions (e.g., anger, disbelief, sympathy/empathy, etc.,); this was significant for those who failed to meet criterion A compared to those meeting criterion A ($p < 0.05$). This is important because it indicates that various emotions other than helplessness may be important to consider especially for those not meeting criterion A.

Although all other exposures were not significant, in general, those who did not meet criterion A (DSM-5) cited the following as stressful: watching coverage of the shootings during the week of the shootings, being upset by media coverage of the shootings, not knowing what was going on, media in general, and the category of the "delayed" aftermath. No respondents with probable PTSD met criterion A (DSM-5) measured qualitatively.

Table 15: Proportions of Faculty/Staff with Probable PTSD with and without Criterion A (DSM-5) Determined Quantitatively and Qualitatively by Direct and Indirect Exposures.

	Quantitative		Qualitative[13]	
Direct Exposures[14]	**Met A (DSM-5)**	**Did Not Meet A (DSM-5)**	**Met A (DSM-5)**	**Did Not Meet A (DSM-5)**
During April 16 ("immediate aftermath")	.45	.25	--	--
Felt Helpless	.32	.00*	--	--
Indirect Exposures				
Bothered by reminders of shootings	.73	.72	--	--
Watched coverage during week of 4/16	.74	.82	--	--
Upset by media coverage in first weeks	.77	.78	--	--
Aftermath ("delayed aftermath")	.41	.58	--	--
Emotions	.14	.50*	--	--
Injury and Loss of life	.23	.17	--	--
Media	.18	.25	--	--
Not knowing	.18	.33	--	--

***$p \leq .001$
**$p \leq .01$
*$p \leq .05$

In Table 16, faculty/staff meeting criterion A1 and criterion A2 strict (DSM-IV-TR) cited reminders of the shootings as stressful; this was significant ($p < 0.05$).

Quantitatively defined, faculty/staff who did not meet criterion A1 and criterion A2 strict, although not significant, cited the "immediate" aftermath, watching coverage

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[13] Because none of the respondents with probable PTSD qualified for A strict, no values were possible.
[14] Exposures (direct and indirect) marked in bold font are qualitative; exposures (direct and indirect) not marked in bold font are quantitative.

during the week of April 16, and the "delayed" aftermath as stressful. None of the

respondents with probable PTSD met criterion A1 expanded and A2 strict.

Table 16: Proportions of Faculty/Staff with Probable PTSD with and without A1 and A2 Strict (DSM-IV-TR) Determined Quantitatively and Qualitatively by Direct and Indirect Exposures.

	Quantitative		Qualitative[15]	
Direct Exposures	**Met A1 and A2 Strict (DSM-IV-TR)**	**Did Not Meet A1 and A2 Strict (DSM-IV-TR)**	**Met A1 and A2 Strict (DSM-IV-TR)**	**Did Not Meet A1 and A2 Strict (DSM-IV-TR)**
During April 16 ("immediate aftermath")	.39	.40	--	.44
Helpless	.21	.20	--	.22
Indirect Exposures				
Bothered by reminders of shootings	.77	.60*	--	.68
Watched coverage during week of 4/16	.77	.78	.00	.74
Upset by media coverage in first weeks	.78	.77	1.00	.71
Aftermath ("delayed aftermath")	.43	.60	--	.44
Emotions	.32	.00	--	.44
Injury and Loss of life	.21	.00	--	.22
Media	.25	.00	--	.22
Not knowing	.29	.00	--	.33

***p $\leq$ .001
**p $\leq$ .01
*p $\leq$ .05

Although none of the relationships were significant, when examining the

quantitative measures of criterion A1 and criterion A2 expanded (DSM-IV-TR) in Table

17, for those not meeting criterion A1 and criterion A2 expanded, being upset by media

coverage during the first weeks after the shootings was cited as a stressor.

[15] No significance was found.

Looking at the qualitative measures of criterion A1 and criterion A2 expanded (DSM-IV-TR) none of the measures were significant. However, for those who did not meet criterion A1 and criterion A2 expanded cited watching coverage during the week of April 16 as stressful.

Table 17: Proportions of Faculty/Staff with Probable PTSD with and without Criterion A1 and A2 Expanded (DSM-IV-TR) Determined Quantitatively and Qualitatively by Direct and Indirect Exposures.

	Quantitative[16]		Qualitative	
Direct Exposures	**Met A1 and A2 Expanded (DSM-IV-TR)**	**Did Not Meet A1 and A2 Expanded (DSM-IV-TR)**	**Met A1 and A2 Expanded (DSM-IV-TR)**	**Did Not Meet A1 and A2 Expanded (DSM-IV-TR)**
During April 16 ("immediate aftermath")	--	--	--	.44
Helpless	--	--	--	.22
Indirect Exposures				
Bothered by reminders of shootings	.74	.50	--	.67
Watched coverage during week of 4/16	.78	.50	.00	.74
Upset by media coverage in first weeks	.78	.83	1.00	.71
Aftermath ("delayed aftermath")	--	--	--	.44
Emotions	--	--	--	.44
Injury and Loss of life	--	--	--	.22
Media	--	--	--	.22
Not knowing	--	--	--	.33

***p ≤ .001
**p ≤ .01
*p ≤ .05

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[16] All blank fields could not be calculated because all of the respondents failed to meet A1 expanded and A2 expanded.

Qualitative Analysis of Faculty/Staff Reactions Not Conforming to Criterion A

There were 16 faculty/staff respondents who did not meet any version of criterion A. These 16 faculty/staff were stressed in both the "immediate" and "delayed" aftermath.

In the "immediate" aftermath respondents were stressed by not knowing what was going on, where the shooter was (or where the shooter would go next), and non-stop sirens. In the "delayed" aftermath, stressors included feeling sympathy for victims and their families, thinking about the failure of the university to close after the first shootings were known, how many people were killed, thinking that the shooting could have happened in "my" classroom, the media announcement of the final number killed, having to continue to work, how long it took for buildings to be locked down, being known world wide for the worst college shooting, feeling desperate, being confronted with the fact that the shootings could happen at this school, the invasiveness of the media and the randomness/senselessness of the shootings.

These responses are similar to the general responses discussed earlier in Chapter 4. In fact, not knowing what was going on or where the shooter would go next or what should be done while in lockdown was commonly cited. Also, the media were often referenced as a stressor in the general responses. The number of people injured and killed was also something that was referenced by those in the general responses. Finally, there were also responses about various feelings: anger toward the shooter, anger toward the school for perceived failures to shut down or warn the community closer to the first shootings, sympathy and empathy for victims and families of the victims and injured, and helplessness over being unable to help or change situations and circumstances.

Although helplessness is considered part of A2 (DSM-IV-TR), it remains an important aspect of both general and probable PTSD responses. First, it is noteworthy because so many in the general responses cited the feeling of helplessness as stressful. Second, it is important because 11 of those with probable PTSD only met A2. Furthermore, of those 11, the eight who met A2 specifically mentioned or cited helplessness. Helplessness appears to be unique in that it can encompass many different emotions or feelings (fear, anger, being stuck, having to wait or not know what is going on, loss of control). It was important to separate out helplessness not only because of its repetition throughout the responses but also because of how often it was discussed in the research literature. This is in part due to the fact that criterion A2 used to be part of the stressor criterion of PTSD from DSM-IV-TR, but also emerged regularly as a "feeling" or emotion many experienced directly and indirectly during and after trauma.

Quantitative Analysis of Student Reactions Not Conforming to Criterion A

As with faculty/staff, I looked at students meeting probable PTSD but failing to meet any variation of criterion A quantitatively. Next, I compared the proportions between those who met criterion A and those who did not meet criterion A along with their indirect stressful experiences and reactions that did not conform to criterion A. Third, I qualitatively described their responses, reactions, and experiences not conforming to criterion A.

In Table 18, when examining students with probable PTSD who did and did not meet criterion A (DSM-5) defined quantitatively, four significant relationships emerged. For those meeting criterion A, the "immediate aftermath was cited as stressful and significant ($p < 0.05$) and injury/loss of life was cited as stressful and significant ($p <$

0.01). For those who did not meet criterion A (DSM-5), being bothered by reminders of the shootings was cited as stressful and significant ($p < 0.01$) and watching coverage of the shootings during the week of April 16 was cited as stressful and significant ($p < 0.001$). The non-significant reactions that were cited as stressful for those who did not meet criterion A included the "delayed" aftermath, emotions (not including helplessness), and media in general.

For students with probable PTSD who did not meet criterion A (DSM-5) defined qualitatively, only one reaction was significant: not knowing and it was significant ($p < 0.05$). The remaining reactions though insignificant followed some of the same patterns seen with faculty/staff discussed earlier. Namely, students not meeting criterion A (DSM-5) said the following were stressful: feeling helpless, watching coverage of the shootings during the week of April 16, being upset by the coverage of the shootings in the first weeks after the shootings, the "delayed" aftermath, emotions (not including helplessness), and media in general.

Table 18: Proportions of Students with Probable PTSD with and without Criterion A (DSM-5) Determined Quantitatively and Qualitatively by Direct and Indirect Exposures.

	Quantitative		Qualitative	
Direct Exposures	**Met A (DSM-5)**	**Did Not Meet A (DSM-5)**	**Met A (DSM-5)**	**Did Not Meet A (DSM-5)**
During April 16 ("immediate aftermath")	.42	.25*	.56	.37
Helpless	.15	.10	.11	.14
Indirect Exposures				
Bothered by reminders of shootings	.63	.73**	.67	.65
Watched coverage during week of 4/16	.58	.77***	.44	.66
Upset by media coverage in first weeks	.78	.73	.67	.78
Aftermath ("delayed aftermath")	.45	.55	.33	.49
Emotions	.11	.22	.00	.15
Injury and Loss of life	.28	.10**	.44	.22
Media	.22	.31	.11	.25
Not knowing	.32	.25	.00	.32*

***p $\leq$ .001
**p $\leq$ .01
*p $\leq$ .05

In Table 19, for students with probable PTSD and meeting criterion A1 and criterion A2 strict (DSM-IV-TR) defined quantitatively, four stressors cited were significant; they included not knowing ($p < 0.05$), being upset by media coverage in the first weeks, and being bothered by reminders of the shootings, and the "immediate" aftermath ($p < 0.01$). Only one relationship was significant for those who did not meet criterion A1 and criterion A2 strict and the stressor cited was the media in general ($p < 0.05$). For those not meeting criterion A1 and criterion A2 strict, other cited stressors that

were not significant included: watching coverage during the week of April 16 and injury/loss of life.

For students meeting criterion A1 and criterion A2 strict (DSM-IV-TR) defined qualitatively who also had probable PTSD, three stressors were cited and significant: feeling helpless ($p < 0.01$), the "immediate" aftermath and injury/loss of life ($p < 0.05$). Again, only one stressor was significant for those not meeting criterion A1 and criterion A2 strict (DSM-IV-TR) and that was watching coverage during the week of April 16 ($p < 0.05$). Other stressors cited for those not meeting criterion A1 and criterion A2 strict (DSM-IV-TR) that were not significant included: being bothered by reminders of the shootings, being upset by the media coverage in the first weeks, emotions (other than helplessness), and the "delayed" aftermath.

Table 19: Proportions of Students with Probable PTSD with and without Criterion A1 and Criterion A2 Strict (DSM-IV-TR) Determined Quantitatively and Qualitatively by Direct and Indirect Exposures.

	Quantitative		Qualitative	
Direct Exposures	**Met A1 and A2 Strict (DSM-IV-TR)**	**Did Not Meet A1 and A2 Strict (DSM-IV-TR)**	**Met A1 and A2 Strict (DSM-IV-TR)**	**Did Not Meet A1 and A2 Strict (DSM-IV-TR)**
During April 16 ("immediate aftermath")	.45	.25**	.80	.37*
Helpless	.17	.08	.60	.13**
Indirect Exposures				
Bothered by reminders of shootings	.69	.58**	.40	.66
Watched coverage during week of 4/16	.62	.66	.20	.66*
Upset by media coverage in first weeks	.80	.70**	.60	.78
Aftermath ("delayed aftermath")	.48	.48	.40	.48
Emotions	.14	.14	.00	.14
Injury and Loss of life	.21	.26	.60	.22*
Media	.19	.35*	.40	.24
Not knowing	.36	.20*	.60	.30

***p ≤ .001
**p ≤ .01
*p ≤ .05

In Table 20, for students who met criterion A1 and criterion A2 expanded (DSM-IV-TR) quantitatively with probable PTSD, being upset by media coverage in the first weeks was cited as a stressor and significant (p < 0.001). Only one stressor was significant for those who had probable PTSD but did not meet criterion A1 and criterion A2 expanded (DSM-IV-TR): media in general (p < 0.001). Other stressors cited that were not significant for those not meeting criterion A1 and criterion A2 expanded

included being bothered by reminders of the shootings and watching coverage during the week of April 16.

Looking at criterion A1 and criterion A2 expanded (DSM-IV-TR) qualitatively, students with probable PTSD had four significant stressors emerge: feeling helpless ($p < 0.05$), not knowing ($p < 0.01$), injury/loss of life, and the "immediate" aftermath ($p < 0.001$). For the students with probable PTSD but who did not meet criterion A1 and criterion A2 expanded, no significant stressors emerged. Other stressors cited that were not significant for those with probable PTSD not meeting criterion A1 and criterion A2 expanded included watching coverage during the week of April 16, being upset by the media coverage in the first weeks, the "delayed" aftermath, emotions (other than helplessness), and media in general.

Table 20: Proportions of Students with Probable PTSD with and without Criterion A1 and Criterion A2 Expanded (DSM-IV-TR) Determined Quantitatively and Qualitatively by Direct and Indirect Exposures.

	Quantitative		Qualitative	
Direct Exposures	**Met A1 and A2 Expanded (DSM-IV-TR)**	**Did Not Meet A1 and A2 Expanded (DSM-IV-TR)**	**Met A1 and A2 Expanded (DSM-IV-TR)**	**Did Not Meet A1 and A2 Expanded (DSM-IV-TR)**
During April 16 ("immediate aftermath")	.39	.00	.72	.34***
Helpless	.14	.00	.33	.12*
Indirect Exposures				
Bothered by reminders of shootings	.65	.71	.67	.65
Watched coverage during week of 4/16	.63	.65	.50	.66
Upset by media coverage in first weeks	.77	.41***	.67	.79
Aftermath ("delayed aftermath")	.48	.25	.39	.49
Emotions	.14	.00	.11	.14
Injury and Loss of life	.23	.00	.67	.18***
Media	.23	1.00***	.11	.26
Not knowing	.30	.25	.61	.27**

***p ≤ .001
**p ≤ .01
*p ≤ .05

Qualitative Analysis of Student Reactions Not Conforming to Criterion A

There were 77 student respondents who did not meet any version of criterion A. The students, like the faculty/staff, were stressed in both the "immediate" and "delayed" aftermath.

In the "immediate" aftermath, students were stressed by the breakdown of communication on the day of the shootings making it difficult to get in touch with others and not knowing what was going on or what would happen next. In the "delayed"

aftermath, students were stressed by the media and its release of content from the shooter, sympathy/empathy toward the victims and/or their families, various emotions including disbelief, shock, sadness, guilt, admitting the reality of what happened, the aftermath, everything, going back to classes, comforting friends, the fact that anyone could have been a victim, learning of the death count, the fact that it happened, sharing similarities with the shooter, outsiders' responses to the shootings, being confused/upset classes were not canceled sooner, thinking it could have been "me," trying to keep working, and trying to cope and come to grips with what happened.

These responses are similar to the general responses discussed earlier in Chapter 4. Media was often cited as a stressor in both the general responses and for those qualifying for probable PTSD (but not meeting criterion A). Various emotional responses were also seen in both groups. In the respondents who did not qualify for criterion A but qualified for probable PTSD, sympathy/empathy, sadness, guilt, disbelief, and shock were the most cited emotions. Although not directly cited, anger and/or confusion were insinuated by who were stressed by the fact that the university did not shut down after the first dorm shootings.

Not knowing and the aftermath were also cited in both types of responses. Not knowing what was going on or how friends and loved ones were doing on the day of the shootings was cited in both groups. The aftermath was also cited regarding returning to school, dealing with the reality of what happened, and having to negotiate the responses or reactions of outsiders (including the media but also those external to media). Interestingly, none of the respondents who qualified for probable PTSD but failed to meet

criterion A cited loss of someone close as a stressor—this differed from those in the general responses since some cited loss of someone close or an acquaintance as stressful.

After examining responses/reactions that did not conform to criterion A, I next examined whether differences existed by sex/gender in order to answer the next research question:

Q4. How do the processes linking experiences and reactions to probable PTSD differ for men and women?

Faculty/Staff by Sex/Gender Interactions

I first explored faculty/staff respondents with probable PTSD through a series of logistic regressions including interactions by sex/gender and criterion A measures (DSM-IV-TR and DSM-5). This was done with both quantitative and qualitative measures of criterion A. None of the interactions were significant. The reason is likely due to lack of cases. For example, in the qualitative data, only 6 faculty/staff met criterion A (DSM-5). Even when there were more respondents included in the analyses (DSM-IV-TR), there were still too few cases. Consequently, the lack of statistical power likely contributed to the inability to detect any significant differences. Next, I qualitatively examined the open-ended responses of faculty/staff meeting criterion A measures. I next report patterns I saw with faculty/staff respondents who did not meet criterion A (DSM-IV-TR and DSM-5) but who did have probable PTSD. Later I do the same with student respondents.

Faculty/Staff Meeting Probable PTSD with and without Criterion A by Sex/Gender

Below, Figure 13 presents the number of male and female faculty/staff meeting probable PTSD with and without various definitions of criterion A in the open-ended responses. Females depicted in red while males are depicted in blue.

In total, 34 faculty/staff met probable PTSD, however, because one refused to identify sex, only 33 are included in the probable PTSD category. Of the 33 faculty/staff with probable PTSD, 24 were women and nine were men. Among the 24 female faculty/staff respondents, four met criterion A, one met criterion A1 only, and seven met criterion A2 only. In total 12 women, or 50%, met criterion A, criterion A1, or criterion A2. Of the nine male faculty/staff respondents meeting probable PTSD, two males met criterion A, out none met criterion A1 only, and four met criterion A2 only. In total six males, or 66%, met criterion A, criterion A1, or criterion A2.

Of those meeting probable PTSD, 12 of the 24 female faculty/staff respondents, or 50%, did not meet any criteria A. Of the nine male faculty/staff respondents with probable PTSD three, or 33%, did not meet any of the variously defined criteria A.

Figure 13: Faculty/Staff Meeting Probable PTSD with and without Criterion A by Sex.
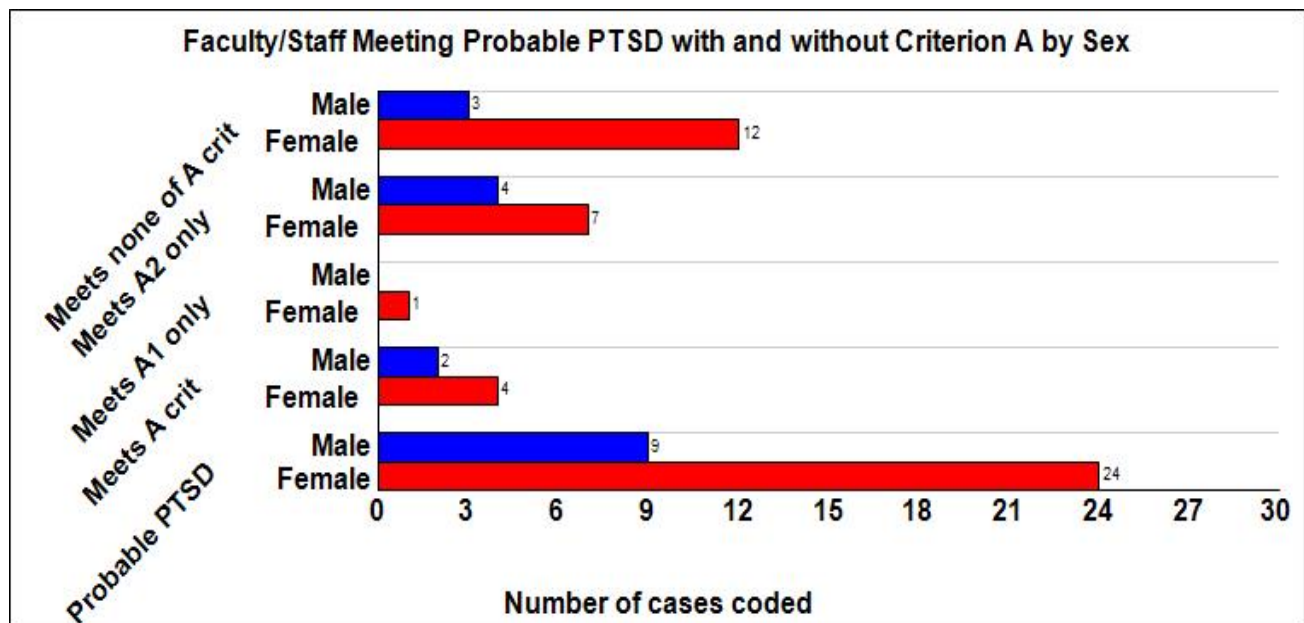
Among faculty/staff respondents who did not meet criterion A, it became apparent that females were more stressed by media compared to their male counterparts. For example, of the three males who did not qualify for criterion A, none cited media as a stressor. Stressors for these three men included stressors in the "delayed" aftermath such as desperate thinking, failure of the school to warn and close sooner, and thinking the shootings could have happened in "my" classroom.

Of the 12 women who did not meet criterion A, three cited media as a stressor. There were also other stressors including those in the "immediate" aftermath such as not knowing what was going on as it was happening and where the shooter was and the "delayed" aftermath such as thinking of the sirens and reminders, the fact the shootings happened "here," thinking of the families that experienced loss, how many people were lost or killed, the senselessness of the shootings, continuing to work and lack of notice/time to lockdown. Both male and female faculty/staff mentioned the failure or lack of notice/time to lockdown the campus as stressful.

The literature suggests that those with PTSD tend to have a difficult time communicating or talking about their trauma or emotions. Perhaps what is occurring here is not that women are more traumatized than men, but have better tools or help to talk and explore the emotions and feelings they have over the trauma, whereas the men are less equipped to do so and therefore are less likely to qualify for various criteria (especially criterion A).

Another possibility may be the fact that none of the males found anything in the "immediate" aftermath to be stressful while some of the females did. Perhaps it is not

just what is stressful but also *when* something is stressful that matters. Perhaps both what and when shape a vulnerability of an individual in the direction of PTSD.

Students by Sex/Gender Interactions

As with faculty/staff, I first explored student respondents with probable PTSD through a series of logistic regressions including interactions by sex/gender and the various criterion A measures (DSM-IV-TR and DSM-5) both quantitative and qualitative. None of the interactions were significant. The reason again is likely due to lack of qualifying respondents and subsequent statistical power. For example, in the qualitative data, only 21 faculty/staff met criterion A (DSM-5). Even when there were more respondents included in the analyses (DSM-IV-TR), there were still too few cases.

Next, I examined student open-ended responses of those meeting criterion A measures. I then report patterns observed with respondents who did not meet criterion A (DSM-IV-TR and DSM-5) but who had probable PTSD.

Students Meeting Probable PTSD with and without Criterion A by Sex/Gender

Figure 14, below, presents the numbers of male and female students meeting probable PTSD with and without criterion A variously defined. Female students are depicted in red while male students are depicted in blue.

A total of 188 students met probable PTSD in the student sample. Of the 188 students, 131 females, or 77% were female and 57, or 30%, were male. Among the 131 females meeting probable PTSD, 83, or 63% met criterion A, criterion A1, or criterion A2 from the qualitative open-ended responses. More specifically, of the 83 women, 18 met criterion A, 14 met criterion A1 only, and 51 met criterion A2 only. Of the 131

female students meeting probable PTSD 48, or approximately 37% did not meet criterion A variously defined.

Among the 57 men meeting probable PTSD, 28, or 49%, of the male students from the open-ended responses met criterion A, criterion A1, or criterion A2. More specifically, of those 28 men, five met criterion A, five met criterion A1 only, and 18 met criterion A2 only. Of the 57 male students meeting probable PTSD, 29, or approximately 51% did not meet various definitions of criterion A.

Figure 14: Students Meeting Probable PTSD with and without Criterion A by Sex.
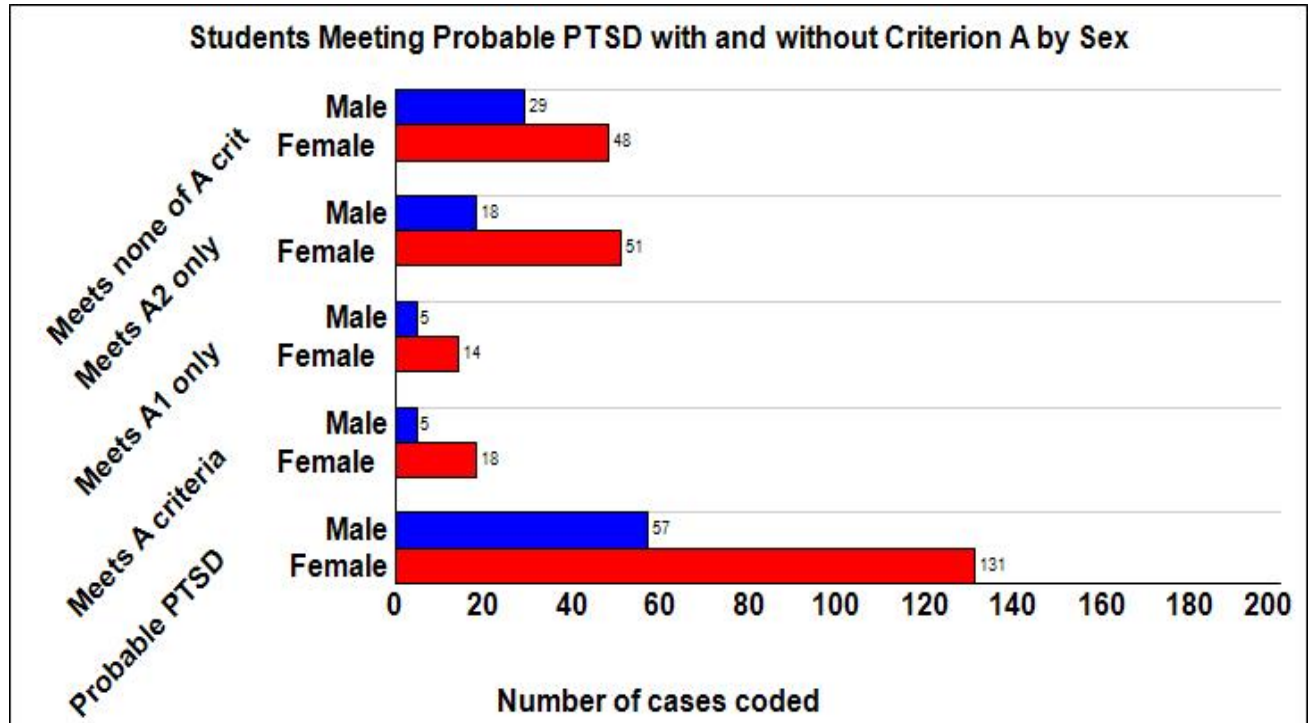
Among male and female student respondents who did not qualify for criterion A, there were not many differences by sex. In fact, male and female students seemed to be more similar in their responses and were stressed in the "delayed" aftermath. For example, male and female students often cited media attention and negative portrayals as

stressful. More specifically, 11 of the 29 male students and 21 of the 46 female students who did not qualify for criterion A emphasized the media stressed them in some way or other.

Students also talked about emotional responses such as sympathy and empathy toward families of victims and imagining what those in Norris classrooms had to go through, sadness over the number of people killed, the fact that this tragedy could happen in a seemingly safe place, and frustration or anger with the media especially in regard to negative commentary or blame pointed at the school and officials. Both men and women were stressed that this tragedy could happen anywhere and victims could be anyone, having to returning to school and the general responses of outsiders when learning they attended VT, and, the number of people killed.

Differences by sex included students being stressed in both the "immediate" and "delayed" aftermath for different reasons. For example, in the "immediate" aftermath, one male was stressed by the breakdown in communications during the day of the shootings. In the "delayed" aftermath, stressors included parallels between the shooter and one male student, another male talked about trying to help others to cope while he was also dealing with the tragedy and trying to keep working and studying in school, and, lack of support from others.

Female students differed from males in that they were stressed in both the "immediate" aftermath by feelings of shock, disbelief, and worrying about others (especially loved ones and friends). In the "delayed" aftermath, female students talked about the aftermath in general and impact on the community including the fact that the rest of the world was mourning with "us," trying to comfort friends, not understanding

why classes were not canceled or why the shooter did what he did, thinking of what if scenarios, and one female talked about wondering about God and being stressed over graduating.

I next investigated whether differences existed by age/role in order to answer the final research question:

Q5. How do the processes linking experiences and reactions to probable PTSD differ for younger (students) and older (faculty/staff) respondents?

Faculty/Staff by Age

As with sex/gender, it was important to first examine faculty/staff respondents with probable PTSD through a series of logistic regressions including interactions by age and criterion A measures (DSM-IV-TR and DSM-5). This was done with both quantitative and qualitative measures of criterion A. As was true for sex/gender, analyses revealed no significant interactions by age/role likely due to a lack of qualifying respondents and statistical power. There were also no significant findings for the qualitative sample by age/role for the same reasons.

Below I qualitatively examine faculty/staff open-ended responses of those meeting criterion A measures and report common themes reported by those with probable PTSD but failing to meet criterion A (DSM-IV-TR and DSM-5).

Figure 15 presents faculty/staff meeting probable PTSD with and without criterion A variously defined. Faculty/Staff ranged in ages from 18-78 years. Faculty/staff with probable PTSD and criterion A appeared more frequently between ages 30-59. Although younger (18-29) and older (60-78) faculty/staff met probable PTSD and failed to meet criterion A, the bulk of the faculty/staff respondents meeting probable PTSD and various definitions of criterion A are between ages 30-59.

More specifically, one faculty/staff member from the 18-22 age group, one respondent from the 23-29 age group, 10 faculty/staff from the 30-39 age group, eight from the 40-49 age group, 12 from the 50-59 age group, and two respondents from the 60-78 age group met probable PTSD.

This same pattern remained for those not qualifying for criterion A. Specifically, zero from the 18-22 age group, one from the 23-29 age group, three faculty/staff in the 30-39 age group, six in the 40-49 age group, four in the 50-59 age group, and two in the 60-78 age group did not meet criterion A.

Figure 15: Faculty/Staff Probable PTSD with and without Criterion A by Age.
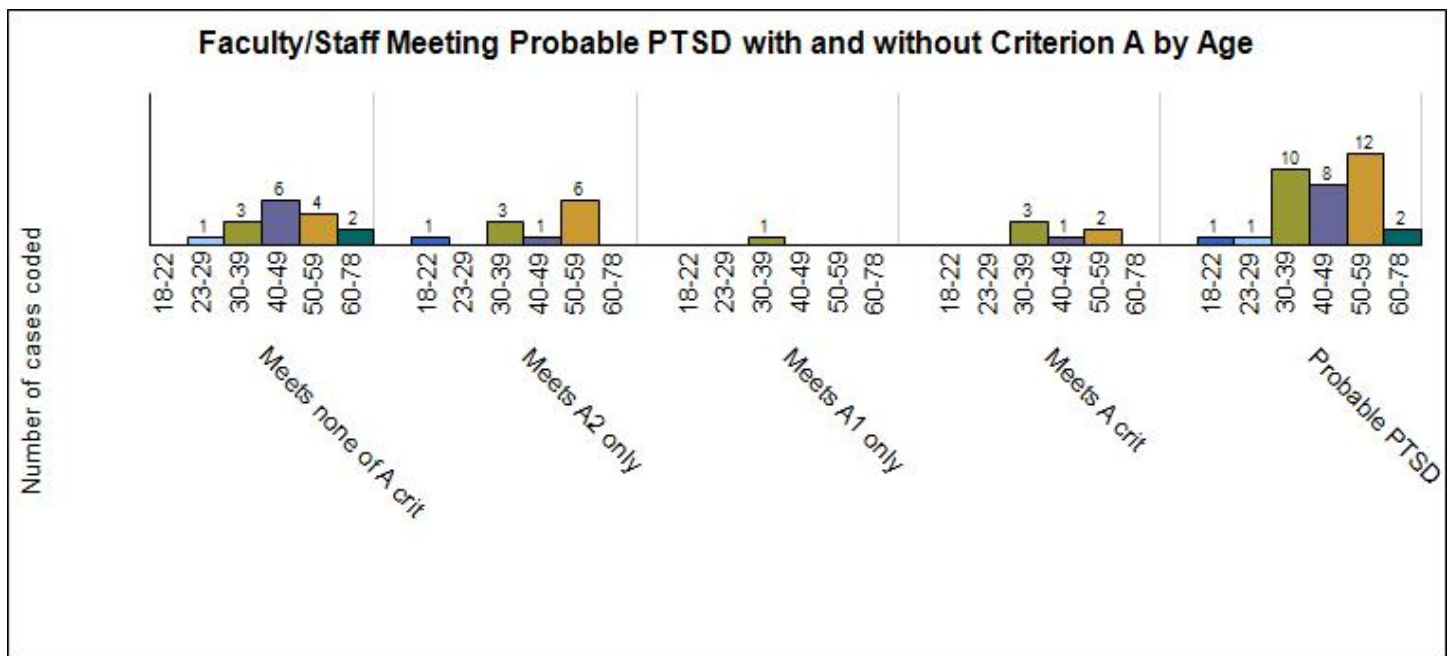
For faculty/staff not meeting criterion A, stressors cited came from both the "immediate" and "delayed" aftermath time periods. In the "immediate" aftermath stressors included sounds of sirens and announcements the day of the shootings (ages 23-29), not knowing where the shooter was or what was going on (ages 50-59), not knowing where the shooter would go next and the safety of others (ages 60-78). In the "delayed"

aftermath, stressors included media coverage, learning of the death toll, and continuing to work (ages 30-39), thinking of families who lost loved ones, the death toll, the fact that the school was not closed after the first shootings or how long it took to shut down, the fact that VT would be known as the worst college shooting, how desperate people can get (ages 40-49), knowing that something like this could take place "here," the randomness and senselessness of the crime along with the media invasion, and thinking it could happen in "my classroom" (ages 50-59), and, the failure of the university to close or warn after the first shootings and (ages 60-78).
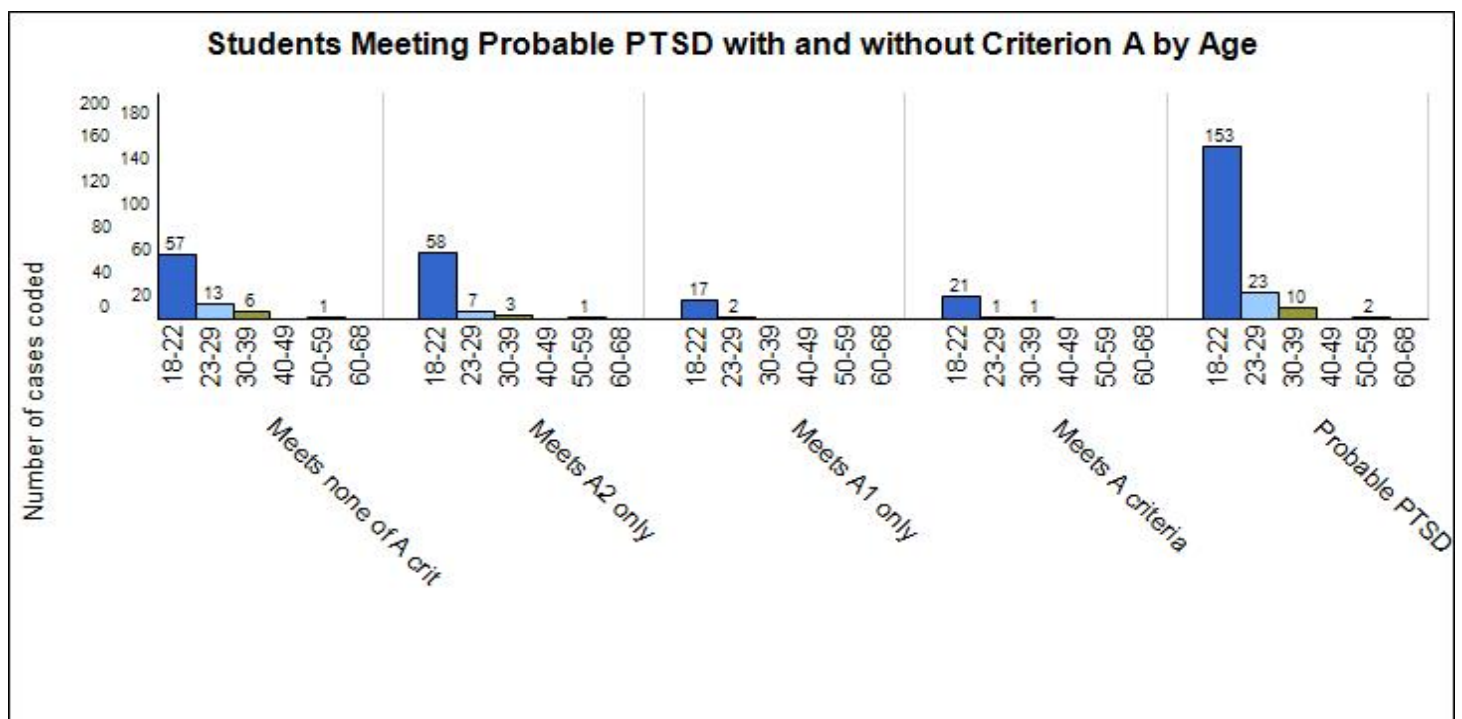
Students by Age

I first examined student respondents with probable PTSD via logistic regressions including interactions by age and criterion A (DSM-IV-TR and DSM-5). This was done with both the quantitative and qualitative measures of criterion A. Likely because of small sample sizes and low statistical power there were no significant findings by age/role for either the quantitative or qualitative sample.

As with faculty/staff, I next examine open-ended responses of those students who met criterion A, and, describe what those respondents with probable PTSD who did not meet criterion A (DSM-IV-TR and DSM-5) found stressful.

Figure 16 shows students meeting probable PTSD with and without criterion A defined in various ways. Student respondents spanned ages 18 to 68 years. Students with probable PTSD and criterion A appeared more frequently between ages 18-39. Although there are students aged 40-59 who met probable PTSD, and, failed to meet criterion A, the bulk were between ages 18-39. Unlike the faculty/staff, students who did not meet criterion A were more frequently among those aged 18-22.

Regarding probable PTSD, 153 students from the 18-22 age group, 23 students from the 23-29 age group, 10 from the age group 30-39 age group, zero from those aged 40-49, two from the age group 50-59, and zero from those aged 60-68 met probable PTSD. When examining criterion A, 57 students between ages 18-22, 13 students between ages 23-29, and six students between ages 30-39 failed to meet criterion A. Among those aged 40-49, zero students did not meet criterion A, one student did not meet criterion A in the 50-59 age group, and zero students failed to meet criterion A in the 60-68 age group.

Figure 16: Students Meeting Probable PTSD with and without Criterion A by Age.

Students by Classification

Figure 17 presents student respondents meeting probable PTSD with and without criterion A according to their classification or class status. When examining students by classification (e.g., freshman, sophomore, junior, senior, and graduate student), those who

qualified for probable PTSD and those who did not meet criterion A were more evenly

distributed across classifications. For example, 33 freshmen, 40 sophomores, 45 juniors,

47 seniors, and 23 graduate students met probable PTSD. Those who did not meet

criterion A included 12 freshmen, 12 sophomores, 17 juniors, 22 seniors, and 14 graduate

students.

Figure 17: Students Meeting Probable PTSD with and without Criterion A by Classification.
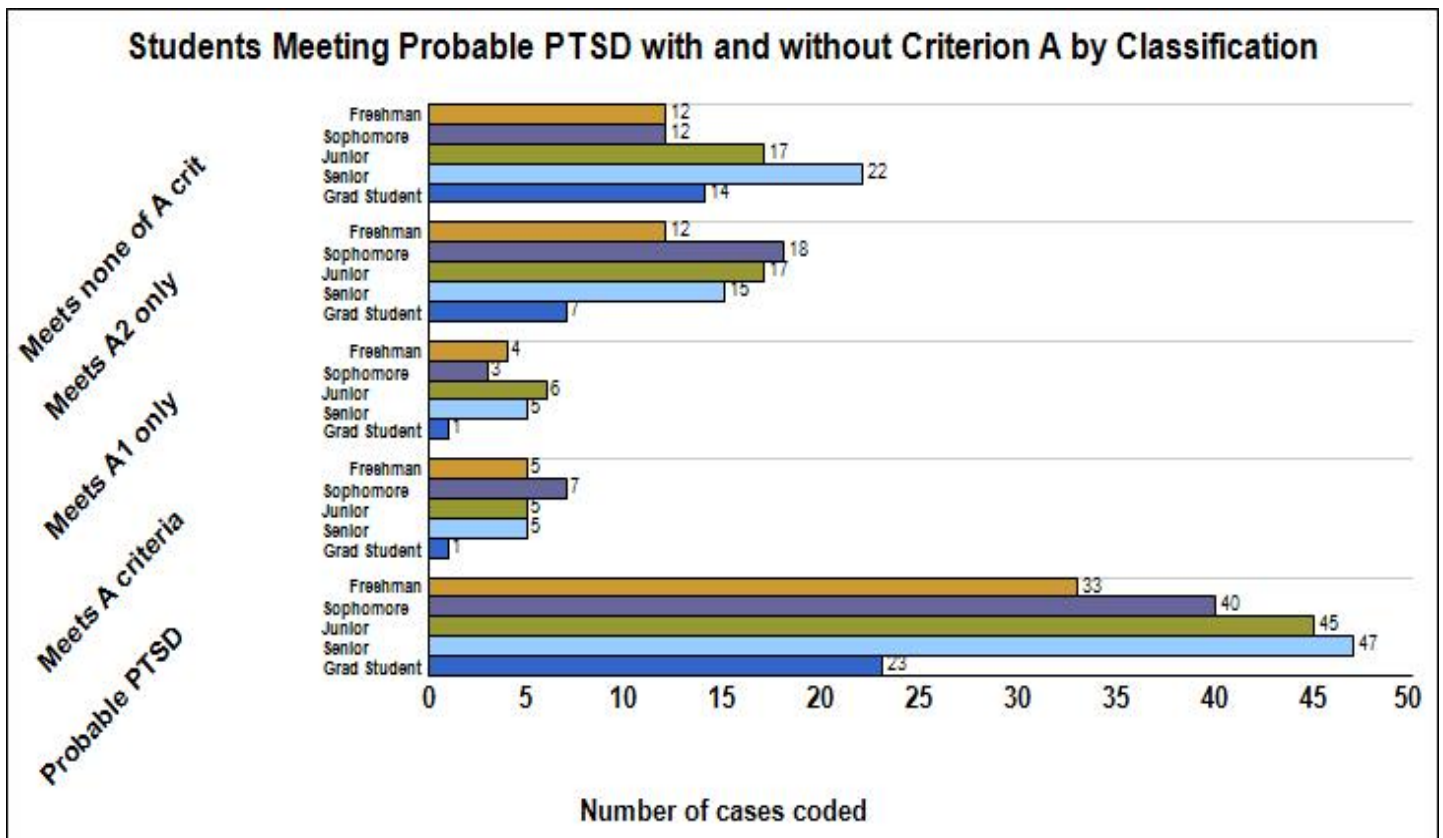
Among freshmen students who did not meet criterion A, the media was

mentioned the most. Also the fact the shooter was from Korea, classes not being

canceled after the first shooting, roommate's lack of concern, looks people gave when

learning this respondent attended VT, the fact the tragedy could happen even in a "safe"

place, the jump in death toll, the fact that anyone could have been targeted or died, and being told to run when leaving class were cited as stressors among freshmen.

Among sophomores, media were cited often (six out of the 12). Other stressors cited by sophomores included one respondent thinking about "what if" scenarios, trying to understand why this shooting happened, hearing a roommate's account who had been in Norris, crying two days after the shootings for "no reason," and thinking about the victims and what they had to go through. Juniors found media to be stressful (seven out of 17)—from reporters, to bad things that were said about the school and its officials, and the way media handled themselves.

Juniors also talked about not knowing what was going to happen, trying to understand why someone would do such a thing (as the shooting), thinking about victims and what they went through, continuing to work on a project that was later canceled, the protesting of funerals and not sleeping, learning of the high death count, the fact that so many were killed by an "unstable" person, everything, and worrying about others including loved ones, as stressful.

For seniors, seven of the 22 who did not meet criterion A also cited the media as a stressor. Other stressors for senior students included wondering about God and being stressed about graduating, going back home, realizing that 32 were dead and could not be with the community anymore, that the world was mourning with "us," returning back to campus after the fact, thinking that it could have been "me," thinking about students who faced the killer, being sad, comforting others, watching families and others struggle after the fact, coming to grips with the tragedy, having others ask questions when learning you went to VT, and the fact that it happened in a "safe" place.

Finally, among graduate students, six of the 14 who did not meet criterion A cited media as stressful including the video of the shooter, media intrusiveness on campus, reminders and constant media coverage. Other stressors mentioned by graduate students who did not meet criterion A included not knowing who had been killed or injured, everything about the experience of the tragedy, having to deal with school while also dealing with the reality of the shootings and consoling others, going back to campus after the shootings, the number of people killed, the breakdown of communication during the shootings, empathy to the victims' families, and not being warned sooner by the school.

Faculty/staff and students shared some common stressors when not meeting criterion A. Both groups were stressed in both the "immediate" and "delayed" aftermath. In the "immediate" aftermath, faculty/staff and students were stressed by the breakdown of communication or not knowing what was going on the day of the shootings. In the "delayed" aftermath, faculty/staff and students found the media to be particularly stressful as well as the death toll, not being warned sooner, and what if scenarios.

Differences in faculty/staff and students were seen with roles and expectations. For example, having to continue with work was something that faculty/staff also talked about being stressful in the "delayed" aftermath but did not seem to be cited by students. The exception noted was with graduate students. This is likely due to the fact that many graduate students were in roles or positions of teaching, research, and other work roles with the university. Another difference was seen with some students in the "immediate" aftermath (specifically seniors) who were stressed by not knowing what was going to happen regarding graduation.

In the next chapter I review my findings and discuss parallels to, as well as deviations from, the existing literature. I also present limitations before providing suggestions for future research.

—Chapter 7 CONCLUSIONS AND DISCUSSION

In this study, my first objective was to examine the full spectrum of subjective stressful responses that emerged as a consequence of the April 16, 2007 campus shootings at Virginia Tech for faculty/staff and students. In addition, I examined the role of the "stressor" criterion A (from the DSM-IV-TR and DSM-5) and its relationship to those meeting, and failing to meet, probable PTSD. Lastly, I explored the role of sex/gender and age/role regarding stressful responses, probable PTSD, and criterion A.

This topic is important to study because most individuals will experience a traumatic event in their lifetime (Friedman et al. 2011; Read et al. 2011), yet, not all exposed to trauma will go on to develop complications as a result of that exposure (Aneshensel and Phelan 1999; Bonanno 2004). Furthermore, less focus has been directed to the full range of responses experienced or expressed after a traumatic event by those directly and indirectly exposed to trauma (Smith and Hughes 2017) and particularly the impact of direct exposure(s) in the aftermath of mass shootings (Wilson 2017).

This research attempts to close gaps in the literature by examining more deeply the "stressor" criterion A of PTSD, the full range of responses experienced after experiencing a traumatic event (the April 16, 2007 Virginia Tech shootings), direct and indirect exposures of the shootings, and the role of sex/gender and age/role regarding exposure(s) and probable PTSD.

Five research questions guided this project. The first research question, "**What are the general stressful responses/reactions of faculty/staff and students after experiencing the shootings of April 16, 2007 at Virginia Tech?"** examined the general stress responses of respondents. I found that both faculty/staff and students experienced a

diverse array of responses and reactions to the shootings. Six main codes and two

organizing categories emerged. Codes included: *Emotions, Helpless, Injured/Loss of*

Life, Media, Not knowing and *Not stressed.* Categories included: *During April 16*

("immediate aftermath") and *After April 16 ("delayed aftermath").* The organizing

categories were especially interesting because although the open-ended question asked

respondents to provide what was the most stressful thing they experienced that day (April

16), there were respondents who talked about April 16th the day itself as stressful, any

time following after April 16 including the day after to months later, and both the day of

April 16 and time after April 16 as stressful. The theme of helplessness, powerlessness,

and/or lack of control became evident throughout these codes and categories. The sense

of inability to control, fix, or change circumstances was repeated throughout. This is a

theme that will need to continue to be explored.

The second research question, "**Is criterion A (A, A1, A2) necessary for a**

diagnosis of probable PTSD?" examined the relationship between probable PTSD and

criterion A of PTSD (DSM-IV-TR and DSM-5). I found that respondents, both

faculty/staff and students, with probable PTSD did not always meet criterion A. This will

require more investigation since meeting criterion A continues to be mandatory for a

diagnosis of PTSD.

The third research question, **"If criterion A was not necessary for a diagnosis of**

probable PTSD in all cases, what stressful experiences/responses/reactions (not

conforming to criterion A) were linked to probable PTSD?" examined stress

responses of those with probable PTSD but not meeting criterion A (DSM-IV-TR and

DSM-5). When looking at the data statistically, for faculty/staff with probable PTSD but

not meeting criterion A variously defined, *emotions* (e.g., anger, disbelief, shock,

sympathy/empathy, etc.,) were the only significant stressors not conforming to criterion

A. For students the *not knowing*, being bothered by reminders, *media*, and watching

coverage during the week of the shootings were all significant stressors.

When examining the open-ended responses, I found that both faculty/staff and

students talked about being stressed by many of the same responses noted earlier such as

not knowing what was going on during the shootings, the role of the *media* afterward, the

number of those killed as a result of the shootings, and a variety of *emotions* including

sympathy/empathy, helplessness, and anger. Reminders such as sirens were also raised

by faculty/staff in their open-ended responses. Much of what emerged in this answer for

faculty/staff and students happened in both the "immediate" but especially the "delayed"

aftermath of the shootings. These findings suggest there is need to further examine the

role of media and/or emotional responses, as well as timing ('immediate' vs. 'delayed'

aftermath) after traumatic events such as mass shootings.

The fourth research question, **"How do the processes linking experiences and**

reactions to probable PTSD differ for men and women?" examined the differences in

stress reactions between men and women meeting probable PTSD. After extensive

logistic regression analyses and interactions by sex/gender, no statistically significant

relationships were found. This was likely due to a lack of sufficient cases to examine and

subsequent lack of statistical power.

In support of the literature (Kessler et al. 1995), for both faculty/staff and

students, women were still more likely to meet probable PTSD when compared to men.

Both male and female faculty/staff talked, in their open-ended responses, about being

stressed over the fact that the school had not been closed sooner or the community had not been warned sooner. Although statistically insignificant, still, there were some noted differences in stressors by sex/gender in these open-ended responses of stress. On the one hand, female faculty/staff were stressed by *not knowing* what was happening during the shootings in the "immediate" aftermath. Mostly, however, female faculty/staff members were stressed by "delayed" aftermath stressors such as reminders of the shootings, thinking of the families and victims, continuing to work, the number of people killed, the senselessness of the crime and the fact that the shootings even happened. On the other hand, male faculty/staff were stressed by desperate thoughts and the fact that the shootings could have happened any time, place, or day.

Female and male students shared some similarities and were stressed in the "delayed" aftermath including *media* portrayals of the school and community after the shootings, the fact the shootings happened in the first place, having to return to school, the response(s) of outsiders, and having a range of *emotions* including sadness, sympathy/empathy, and anger. However, there were some noted differences. On the one hand, although female students shared many of the same emotions as their male counterparts, they also experienced shock, disbelief, and worry. Female students were stressed by much of the "delayed" aftermath including the impact of the shootings on the community (especially the fact that the rest of the world was mourning "with us"), being there to comfort friends, wondering why the shooter did what he did, thinking of the 'what ifs,' wondering about God and what would happen with graduation, and not understanding why classes were not canceled sooner. On the other hand, male students were stressed in "immediate" aftermath because of communication breakdowns and in

the "delayed" aftermath by stressors such as helping others while continuing to work and study, not getting enough support, and one respondent discussed seeing parallels between himself and the shooter.

The fifth, and final, research question, **"How do the processes linking experiences and reactions to probable PTSD differ for younger (students) and older (faculty/staff) respondents?"** examined the differences in stress reactions between younger and older respondents meeting probable PTSD. As with sex/gender, no statistically significant relationships were found after extensive logistic regression analyses and interactions were performed.

However, in the open-ended responses, I found that probable PTSD occurred between ages 30-59 for faculty/staff and age 18-39 for students. Faculty/staff were most stressed in the "immediate" aftermath by sirens and announcements, *emotions* like feeling desperate, the safety of others, and *not knowing* what was going on or the whereabouts of the shooter on the day of the shootings. However, they were also stressed in the "delayed" aftermath by *media* coverage and its "invasion," the final number killed, the fact that they had to keep working, thoughts of families and their *loss*, the fact that the shootings happened and now Virginia Tech would be known for the shootings, that school was not closed or locked down sooner than it was, how random/senselessness the shootings were, and that it could have happened in "my" classroom.

Students also were stressed in both the "immediate" and "delayed" aftermath. Students from freshman to graduate students were stressed by *media* especially in the "delayed" aftermath. They cited being upset with reporters and what was said of the school and its officials, the way media handled themselves, displays of video and other

content sent by the shooter to media outlets, media intrusion on campus, reminders, and constant coverage.

Freshmen and graduate students were stressed by not having been warned or alerted sooner. All students, with the exception of sophomores, cited the *loss*—particularly the number—of people killed, as stressful. Freshmen and seniors talked about being stressed at the looks or responses of outsiders or others when they learned of their connection to Virginia Tech, how the fact that the shootings happened in such a 'safe' place was unsettling, and that the shootings were random and could have happened to anyone including themselves. All groups, except freshmen, expressed sympathy for victims and their families and this was stressful. Sophomores and juniors grappled with "why" the shootings happened while seniors and graduate students grappled with the reality of the event having taken place. Freshmen also mentioned roommate lack of concern or support was stressful; for a small number, the fact that the shooter was Korean was stressful. Sophomores talked about 'what if' scenarios being stressful, having a roommate in Norris give his/her account of having been there was stressful, and crying for no reason two days later was stressful. Juniors were stressed in the "immediate" aftermath by worrying about others, *not knowing* what was going to happen next, and continuing to work on a project that was later canceled. In the "delayed" aftermath, juniors were stressed by protests that occurred at some funerals and not being able to sleep, and some talked about 'everything' being stressful. Senior students were also stressed in the "delayed" aftermath about going back home, having the world mourn with "us," coming back to campus, being sad, comforting others, wondering about God and about what would happen with graduation.

Graduate students were stressed in the "immediate" aftermath by *not knowing* who had been killed or injured and the breakdown of communication during shootings. In the "delayed" aftermath, graduate students talked about being stressed over everything about the experience, having to deal with school and consoling others, and returning to campus afterward.

For the most part faculty/staff and students were stressed by the same things: *media*, *loss* (particularly the number of those killed), not being warned sooner, the breakdown of communication the day of the shootings, *not knowing* what was going on the day of the shootings, and having "what if" scenarios run through their minds. One big difference however was seen in that faculty/staff, compared to students, talked about being stressed about having to continue working. The one exception was graduate students; this likely is due to the fact that some graduate students were teaching classes that semester and, like faculty/staff, would have been expected to continue teaching and/or working when classes resumed.

Conclusion

My results point to several important findings. First, after examining a general profile of stressors I was able to uncover two organizing ways of categorizing stressors experienced from the shootings on April 16, 2007. More specifically, what happened on the day of the shootings themselves ("immediate" aftermath) was considered stressful to many individuals across groups (faculty/staff, students, males, females, young, and older). It also became apparent that what happened after the shootings, beyond the day itself ("delayed" aftermath) was considered equally or more stressful for some across demographic groups. Media were often cited as particularly stressful. Schildkraut and

Elsass (2017) point to the now standard "breaking coverage" pattern in the aftermath of high profile shootings; the practice was established after the Columbine High School shootings in 1999 (119). This same pattern held true in the aftermath of the Virginia Tech shootings in 2007. *Media* were constantly mentioned as stressful. Because we know individuals may experience "significant symptoms and distress" due to indirect exposure(s) to trauma—particularly mass shootings which have not been studied as much as other traumatic events—it is important to heed the call to more deeply investigate vicarious media exposure despite it currently being excluded from the DSM (Fallahi 2017:146).

Another important finding was the constant connection back to helplessness, powerlessness, and/or lack of control in general and among those meeting probable PTSD. Since I mostly focused on those who did not qualify for criterion A, I did not spend much time specifically examining the role of helplessness outside of the general stressors. Nonetheless this theme strikes me as needing much more attention. Something about helplessness appears to be salient in the general responses.

This theme of helplessness, powerlessness, and/or lack of control connected to every code in the "immediate" aftermath: *not knowing* and feeling *helpless* appeared to take power and control away from the individual. This person loses access to information and becomes overwhelmed by the situation. Furthermore, experiencing *emotions* such as fear, disbelief, shock, and others were experienced as sudden, deep, and inescapable. The same theme also connected to every code in the "delayed" aftermath: *media* and *injury/loss of life*. As in the "immediate" aftermath, loss of control and power is evidenced by the way respondents talked about experiences with *media* and learning of

the number of people *injured/killed*. Experiencing emotions such as anger, frustration, disgust and others were also hard to escape. In particular, some respondents were stressed by the conflation of the tragedy with those affiliated with the school and larger community.

Haravuori, Berg, and Marttunen (2017) capture many of the frustrations I saw in the respondents' accounts of media: an "overwhelming number of media representatives" showed up at the scene of the shootings "while the facts [were] still unraveling," used "indiscreet ways" to learn information about the shootings and those involved, and continued to remain on campus for what many respondents felt was too long (176). Complaints against media were also similar to the accounts Hawkins, et al. (2004) unearthed in interviews with Columbine students and parents; early on media were helpful but later media became a "significant problem" in part due to their "intrusion" (220).

Next, when I examined the association of probable PTSD and criterion A among both qualitative and quantitative pre-determined measures, I found that it was not always necessary to meet criterion A even when meeting probable PTSD. This is not surprising in light of the fact that criterion A establishes the threshold for exposure(s). In particular it continues to be less clear, for example, whether being exposed to "extensive TV coverage" of a mass shooting should count as indirect exposure (Wilson 2017:194). Prior studies of individuals exposed to traumatic events reveal distress in persons who report exposures such as TV coverage that currently do not meet criterion A (Silver et al. 2002; Fallahi and Lesik 2009).

Hughes et al. (2011) found indirect exposures such as "short-term uncertainty about the safety of a close friend" and the "loss of a non-close friend/acquaintance" in their survey of students at Virginia Tech three months after the shootings (408). Similar to Hughes et al. (2011), I also found *helplessness* and *not knowing* in the "immediate" aftermath to be stressful for students and faculty/staff. Particularly for students, these codes were often in relation to concern and/or the inability to confirm safety of close and non-close connections. In the "delayed" aftermath *injury/loss of life* also surfaced as stressful. Unlike Hughes et al. (2011), however, various *emotions* and *media* were also stressful. My research thus also taps into this phenomenon: indirect exposures that would not meet criterion A appear to have some relevance.

In addition, as pointed out by Norris et al. (2002a) mass shooting events, compared to other traumatic events, may pose greater mental health risks for those exposed. Perhaps then, being exposed to mass shooting events changes the parameters of criterion A and indirect exposures such that more broadening may be warranted. Thus, it is necessary to continue to investigate a range of exposures of individuals in the aftermath of mass shooting events especially since mass shootings possess "unique characteristics" that appear to heighten the "risk of posttrauma psychopathology" (Wilson 2017:205).

The next important finding was the examination of those who met probable PTSD but did not meet criterion A by sex/gender. Although a null quantitative finding (none of the statistical relationships examined by sex were significant), female faculty/staff and students continued to meet probable PTSD more often than their male counterparts in the qualitative responses. Additionally, females, both faculty/staff and students, cited the main stressors more often than their respective male peers (the exception being the "not

stressed" code). In more closely looking at open-ended stress responses I found that men and women tended to share some of the same stressors. What was particularly interesting, however, was that women and men often talked about their stressors in different ways, albeit subtle. Also, most of the time males and females fell into experiencing stressors in the "delayed" aftermath group. While there were a few who also experienced stressors in the "immediate" aftermath this pattern of experiencing stress in the "delayed" aftermath held true for both faculty/staff and students.

Although the findings by sex are null in this study, it is important to ask why women were more likely to meet probable PTSD, and why they talked differently about their stressors compared to their male peers. Women, compared to men, are often encouraged to be more forthcoming with their feelings, experiences, and symptoms. Not only is this considered more socially acceptable, it also expected more of women than men and men may be penalized for violating "gender-emotion stereotypes" (Mendelsohn and Sewell 2004:107). Furthermore, those with PTSD who use an "approach coping" style wherein they accept and deal with their stressors fare better with "family and social functioning" than those using "avoidance coping" (Tiet et al. 2006:799). In fact, those who avoid or deny their stressors tend to experience more distress (Littleton et al. 2007) and/or fare worse than those actively seeking help (Silver et al. 2002). Therefore, it appears to be necessary to confront stressors in order to be mentally healthy.

The final important finding concerned the examination of those who qualified for probable PTSD but did not meet criterion A by age/role. As with sex/gender, none of the statistical relationships examined by age were significant. When examining open-ended responses by age/role, both faculty/staff and students also shared many of the same

stressors and tended to find the "delayed" aftermath more stressful than the "immediate" aftermath. However, one key difference connected to role came from the fact that faculty/staff were expected, and in many cases required, to remain at the university and work in their roles or jobs. Students were given the option to take the grade(s) they had and leave or work out specifics with faculty/staff. The one exception to this included some graduate students who were also expected to continue with teaching classes or laboratory sections, continuing to research, and, to work in other capacities. Perhaps having an occupation or role with the university, though stressful, was protective for faculty/staff. Also, as Pynoss and his colleagues (1987) pointed out in their study, children, compared to adults, have not fully developed their ability to express sadness and/or affect around sadness and the ability tends to increase "gradually with age" (7). Although the students examined in this study were not children, perhaps the same rationale holds true—until one matures and ages—difficulty continues into young adulthood when it comes to expressing sadness and other emotions experienced during, and after, traumas.

Much of what emerged from these findings is that the environmental context— particularly timing—of an individual's trauma experience ("immediate" and "delayed" aftermath) may be just as important, or more so, than whether the respondent directly or indirectly experienced the shootings. This may also more be more salient than specific demographics such as sex/gender or age/role. In fact, evidence continues to mount that it is not necessary to directly, or in some cases even indirectly, experience trauma to go on to develop PTSD symptoms (Schuster et al. 2001; Silver et al. 2002; Zimering et al. 2006). What is it about the environment? More research needs to examine this very

question. In particular, I believe it is important to examine and compare those who not only directly or indirectly experienced the shootings but also to look at those who were 'stressed' by the "immediate" aftermath compared to the "delayed" aftermath, or, to compare those stressed by both the "immediate" and "delayed" aftermath to either type of aftermath.

Limitations

In this project, there are several limitations worth noting. First, data utilized are cross-sectional and not longitudinal. Although there was a second wave of the survey, not all variables (including the open-ended responses of "stress") were repeated in the second wave. This is problematic because I only know what was stressful three months after the shootings—I have no way of knowing if what was considered stressful changed, and how, before or after the shootings.

Second, responses were assessed three months after the shooting. There is no *good* time to collect self-report data on trauma. If data are collected right away, without longitudinal data, we cannot know if respondents will later qualify for criterion E (duration of at least 30 days) of PTSD. Some respondents may refuse to participate immediately after a traumatic event. However, waiting too long poses the problem of recall bias, forgetting, or false memories. Although a lot of time and planning went into the decision of when to conduct the Internet survey the data from this project are drawn from, timing must nonetheless be recognized as a limitation.

Related to this is the fact that my organizing categories ("immediate aftermath" and "delayed aftermath") technically come from data *collected* in the "delayed aftermath" time period. Although still valuable findings, it will be important in the future for

researchers to keep this in mind and attempt to collect data during both "immediate " and "delayed" aftermath periods whenever possible.

Third, although having the open-ended responses has been crucial to this project, in depth interviews are also needed. Without being able to more deeply examine respondents' stressors, and/or probe responses, more questions are raised. For example, although the DSM sets forth guidelines of what qualifies as "direct" and "indirect" exposure(s) of trauma, and to whom, exploring these constructs is much more complicated without more insights from respondents. What if a respondent should have been in a building or place where the shootings took place but was not? Although this is not a direct exposure, what are the boundaries for direct and indirect exposures? These are questions that could not be answered with solely open-ended responses.

Fourth, respondents who had probable PTSD were not oversampled. Much of the project was initially focused on the subjective responses of participants as well as the role of criterion A. Although I was able to examine those meeting probable PTSD in my smaller sub-samples, statistical analyses and findings in general might have been more robust had I also oversampled those with probable PTSD in the larger faculty/staff and student samples. Connected to this point, although faculty/staff and students were included and sampled, faculty/staff were not separated out in the survey. This may be an important line of future inquiry since faculty and staff often have varying roles within and outside of the university structure. While the survey did identify students by year in school including graduate students, it did not further distinguish graduate student roles. Like faculty/staff, it will also be important in the future for graduate students to be more carefully distinguished by role or specific occupation. This is particularly important

because graduate students often take on similar roles as faculty (e.g., research assistants, graduate assistants in staff or administrative offices, graduate instructors, etc.,). These distinctions may provide for more analytical opportunities and robust ones at that.

Finally, using probable PTSD as opposed to a clinical diagnosis is also a limitation. Clinical diagnoses are preferred but are cost and time prohibitive; therefore it has become standard practice to utilize posttraumatic stress symptoms to tap PTSD symptoms (Smith and Hughes 2017). However, posttraumatic stress symptoms are *not* indicators of clinically diagnosed PTSD and although experts in the field have worked to mitigate measurement "errors" and keep them within an "acceptable range" they have yet to eradicate them (Smith and Hughes 2017:7).

Future Research

Several important questions have been raised because of this project. For instance, why we continue to see women and young persons with higher rates of probable PTSD? In my findings I found both of these patterns to be true in those with probable PTSD and even those who failed to qualify for criterion A. Although the findings by sex and age were not significant, it remains a mystery as to why more women and young persons are more likely to score higher for probable PTSD.

Future researchers might also consider longitudinal and in depth interviews with men, women, young, and older recipients of probable PTSD as well as deeper examinations of the "stressor" criterion A. Could it be that women are more likely to communicate and to be able to express their emotions and seek help and this is one reason we see higher rates of PTSD diagnoses among women compared to men? On the other hand, could it be that young people are less likely, (either because they are

unwilling or unable) to communicate their feelings or experiences and are therefore more vulnerable to PTSD? It remains unclear but there does appear to be a relationship to one's sex as well as one's age regarding likelihood of probable PTSD. Future research is needed in this area especially regarding the release of DSM-5 and the changes made to criterion A and PTSD overall.

Additionally, it is important to continue to examine subjective understandings, meanings, and definitions of stress because individuals are highly variable in their perceptions of what is stressful and what is not. Some of my research begs additional questions such as are there significant differences between those respondents who cite stressors in the "immediate" aftermath as opposed to the "delayed" aftermath? What about those who experience stressors in both? Are there differences in those with probable PTSD compared to those without probable PTSD and what they identify as stressful in relation to the "immediate" vs. "delayed" aftermath? Furthermore, to what extent is exposure to media problematic and/or detrimental in the 'delayed' aftermath for those with probable PTSD regardless of whether they meet criterion A?

While I did not consider prior stressors, it is, and will continue to be, an important area of exploration especially considering the research on stress proliferation (Pearlin 1999; Thoits 2010). More specifically it will likely be important to examine prior stress in addition to exposures in the "immediate" and "delayed" aftermath. For instance, faculty/staff and students on or around the Virginia Tech campus on the first day of classes in August 2006 (the semester prior to the shootings) also experienced the stress surrounding the escape of William Morva from police custody while in a nearby hospital. Morva ultimately killed a hospital security guard and a local (Montgomery County)

sheriff deputy before being apprehended near the Virginia Tech campus. Future scholars thus should also consider probing into how much prior stressful experiences may be connected to exposures of stress in the "immediate" as well as the "delayed" aftermath.

Although also outside the scope of my study, empirical evidence suggests exposure to trauma may lead to shattered assumptions wherein survivors either "maintain" old assumptions or "accept" new ones (Janoff-Bulman 1992:94). Exposure(s) to trauma may also lead to disruptive worldviews capable of changing individual "perceptions of the world" including beliefs about spirituality, safety, control over events, and purpose (Blevins et al. 2016:11). Posttraumatic growth, although complex, has been also been shown in "some circumstances…to lead[s] to a buffering of distress" in the aftermath of trauma exposures (Hobfoll et al. 2007:361). Future research, then, should also investigate whether the type of stressors, or, the timing of stress ("immediate" vs. "delayed" aftermath)—particularly after mass shooting traumas—are connected to shattered assumptions, disruptive worldviews and/or posttraumatic growth.

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