The Influence of Symptom Variation on Attention in Individuals with PTSD

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Isabella Hubbell

Topeka, Kansas

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Thesis Approval
Department of Psychology
Washburn University
Topeka, Kansas

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I hereby recommend that this thesis be prepared under my supervision by

ISABELLA HUBBELL
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Linzi Gibson, Ph.D
Chair of Thesis Committee

John Fritch, Ph. D
Provost and Vice President for Academic Affairs

Cynthia L. Turk, Ph.D
Head of the Department

Recommendation Concurred by

Cynthia L. Turk, Ph.D

Michael McGuire, Ph.D

Abstract

Attentional biases have been found across a wide variety of fear and anxiety-related disorders, and specifically in individuals with trauma history. Eye-tracking was used to examine attentional biases during scene and image viewing in individuals with trauma history (TH) compared to trauma-free controls (TFCs). Past research demonstrates that individuals with TH move their eyes in ways distinct from TFCs, however, the literature is divided about whether TH individuals' attentional bias is characterized by avoidance or fixation when viewing threatening stimuli. TH is often comorbid with anxious and depressive symptoms. Previous research suggests that anxiety- and fear-related disorders are often characterized by visual avoidance of threatening stimuli. Depressive disorders, however, are characterized by difficulty in disengaging from distressing cognitions and emotions, which is also supported by eye-tracking research suggesting depressed individuals tend to fixate on negative stimuli. The current study hypothesized (a) Individuals with PTSD would display enhanced detection of threat compared to trauma-free controls; (b) Individuals with greater depressive/ruminative symptoms would be more likely to fixate on threatening stimuli; and (c) Individuals with greater anxiety symptoms would be more likely to avoid. While no support was found for these hypotheses, this study may serve as the basis for further research into a new and largely unexplored topic.

Keywords: Trauma history, depression, anxiety, eye-tracking, attention

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The Influence of Symptom Variation on Attention in Individuals with PTSD

Perhaps you have seen the video; two basketball teams, one dressed in white, the other in black, rapidly pass a ball back and forth in a complicated pattern. The goal is to follow the ball as it is passed by the team in white. Approximately half of viewers, focused on counting passes, fail to notice the absurdly out-of-place element in the middle of the game—a gorilla walking between the players, pounding its chest. This video and the accompanying study by Simons and Chabris (1999) are an excellent example of how attention shapes our perceptions. Where our eyes look is inseparably linked to our interpretation of the world around us. Thus, an extensive body of research exists examining the relationship between what we look at and what we pay attention to in our environment.

Visual attention (i.e., the allocation of cognitive resources toward a visual stimulus) is guided by two major types of cognitive processes: bottom-up and top-down processing (Anderson, 2005, pp. 74-81; Baluch & Itti, 2011). Bottom-up attentional processing is instinctive and driven by salient features of a stimulus itself, such as movement, size, and bright color. Large objects, moving objects, and bright colors tend to draw attention automatically, regardless of the viewer's intent. Meanwhile, top-down attention is driven by higher-order cognitive processes of the viewer, such as knowledge, goals, and past experiences (Henderson, 2007). Top-down attention can be further divided into two types: volitional and mandatory top-down attention. Volitional top-down attention is the intentional, effortful allocation of cognitive resources to accomplish a task or goal (e.g., looking at a clock to tell the time, or attending to a lesson in class). In contrast, mandatory top-down attention does not require intentional effort on the part of the viewer but happens automatically and depends on the viewer's lived experiences and personal preferences. While mandatory top-down attention

is an automatic process, it is not to be confused with bottom-up attention; mandatory top-down attention is dependent on the viewer, while bottom-up depends on features of the stimulus itself, as discussed above.

One such mandatory top-down process is known as emotional valence. A stimulus may be attended preferentially if the viewer has a strong emotional connection to that stimulus based on past experiences, knowledge, or preferences. That is, a viewer may attend a stimulus with an especially positive or aversive emotional connotation more closely than a stimulus perceived as neutral (Baluch & Itti, 2011). One such emotion that may influence viewing behaviors is fear. Attentional biases have been found across a wide variety of fear and anxiety-related disorders (Clauss et al., 2022), and more specifically in individuals with symptoms of clinical trauma (Lazarov et al., 2019). That is, viewers with symptoms of trauma and other anxiety-and-fear related disorders tend to preferentially attend stimuli perceived as fearful. This study will focus on individual differences in symptomatology (a mandatory process) of trauma and other related disorders and will therefore exclusively discuss mandatory top-down attention moving forward.

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR; American Psychiatric Association [APA], 2022, p. 301), a psychological trauma is defined as:

> Exposure to actual or threatened serious injury, or sexual violence in one (or more) of the following ways: 1. Directly experiencing the traumatic event(s); 2. Witnessing, in person, the event(s) as it occurred to others; 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental;

> 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse; (APA, 2022, p. 301).

Some individuals who experience trauma develop Post-Traumatic Stress Disorder (PTSD), a fear-and-anxiety-based disorder characterized by intrusive symptoms (e.g., distressing dreams about the event, feeling as if they are re-experiencing the event), persistent avoidance of trauma-related stimuli (e.g., avoidance of distressing memories about the event, avoidance of physical/sensory reminders), negative cognitions or changes in mood associated with the trauma (reduced interest in activities, persistent negative emotional state), and heightened arousal associated with the trauma (e.g., hypervigilance, trouble concentrating). PTSD frequently co-occurs with depression and other fear- and anxiety-related disorders (APA, 2022, pp. 301-313).

Previous eye-tracking research in this area indicates that individuals with PTSD tend to display attentional biases during scene and image viewing that are distinct from the attentional patterns of trauma-free controls. That is, individuals with PTSD move their eyes in ways distinct from individuals without PTSD. However, the literature is divided on what these biases actually look like. PTSD's characteristic hypervigilance and negative worldview tend to manifest as increased scanning behavior and faster detection of threatening stimuli, sometimes referred to as enhanced detection of threat or hypervigilance to threat (Kimble et al., 2023). Beyond scanning and initial threat detection, however, the theory generally divides into two seemingly opposing models; avoidance and attention maintenance (Clauss et al., 2023).

A model of avoidance proposes that participants with trauma will visually avoid potentially threatening stimuli; evidence exists for the allocation of attention away from

negatively-valenced information in previous research in traumatized populations (Bar-Haim et al., 2010; Sipos et al., 2014). For example, one study examining avoidance of threat in war-exposed populations administered a dot-probe test of attention to a civilian sample (n = 131) in an active warzone exposed to frequent rocket attacks. Researchers found that participants did tend to avoid rather than fixate on threats. Furthermore, as post-traumatic, anxious, and depressive symptoms increased, so did avoidance behavior. However, note that the sample in this study (Bar-Haim et al., 2010) was exposed to acute, proximal threat rather than a past threat as in typical PTSD cases (APA, 2022, pp. 301-313).

Other studies examining attentional bias in individuals with true PTSD diagnoses have also found evidence of avoidance. Coll et al. (2022) examined threat bias in individuals exposed to the 2015 Paris terrorist attacks (n=103), along with healthy controls (n=65). Individuals with PTSD diagnoses or some PTSD symptomology displayed shorter fixation times on images of negatively valanced faces. No difference was found between groups when viewing happy and neutral faces, suggesting that traumatic symptoms are associated specifically with avoidance of negatively-valenced stimuli (Coll et al., 2022). Similarly, a dot-probe task administered to combat-exposed veterans four months post-deployment found that increased PTSD symptomology was associated with attentional bias away from threat cues (Sipos et al, 2014).

Overall, the findings of the above studies are consistent with DSM Criteria for persistent avoidance of reminders, both cognitive and sensory, of traumatic events, and aligns with an extensive body of evidence that cognitive and behavioral avoidance of threat is a prominent feature of PTSD (American Psychiatric Association [APA], 2022, pp. 301-313; Kimble et al., 2010). Conversely, the attention maintenance model suggests that once oriented

to a potential threat, viewers with PTSD may be unable to disengage from it and therefore may display longer fixation times on potentially threatening stimuli than trauma-free controls (Armstrong et al., 2013; Lazarov et al., 2022). This model would also appear to be consistent with the clinical conceptualization of PTSD: individuals with PTSD frequently suffer from re-experiencing symptoms and an increased level of arousal even in non-threatening situations. That is, they struggle to disengage from the threatening event (American Psychiatric Association [APA], 2022).

Recent meta-analyses of eye-tracking research examining attentional bias in individuals with PTSD suggest a greater tendency toward fixation rather than avoidance. While the above-mentioned research has found shorter dwell-time on threatening faces, other similarly formatted studies have found that trauma-exposed individuals with higher levels of PTSD symptoms dwelled longer on negatively-valenced faces than their less symptomatic or trauma-free counterparts (Armstrong et al., 2013; Kimble et al., 2010; Lazarov et al., 2022). Furthermore, the increased scanning behaviors and/or increased detection of threat in trauma-exposed individuals would indicate vigilance toward threat rather than avoidance away from it. However, previous exploration supports the possibility that both vigilance and avoidance may be present, further muddying the fixation versus avoidance divide in the literature (Lazarov et al., 2019; Kimble & Hyatt, 2019).

Evidence exists across numerous attention-tracking and eye-tracking studies for both phenomena but without explanation for this apparent contradiction (maintenance vs. avoidance) within the literature. The consistency with which both avoidance of and fixation on threatening stimuli have been reported would seem to suggest both are possible, but what factors might influence whether an individual fixates or avoids? Extensive eye-tracking

research has found evidence that anxiety- and fear-related disorders in general are often characterized by visual avoidance of negatively-valenced stimuli (Clauss et al., 2022) and the current understanding of anxiety disorders features avoidance as a key factor in development and maintenance (Hoffman & Hay, 2018).

Depressive disorders, however, are characterized by rumination on negative information (i.e., difficulty in disengaging from distressing cognitions and emotions; Spasojević & Alloy, 2001). Depressed individuals' tendency to fixate on negative information is supported by a growing body of eye-tracking research suggesting depressed individuals tend to dwell longer on negative stimuli than their non-depressed peers (Duque & Vasquez, 2015; Carvalho et al., 2015). The apparent rift in the literature examining attention and viewing behaviors in individuals with trauma symptoms would suggest that some trauma-exposed individuals display eye-movement patterns characterized by avoidance of negative information, while others struggle to disengage from threatening stimuli. Visual avoidance of and fixation on threatening stimuli are also prominent features of anxiety and depression, respectively, which often co-occur with PTSD (American Psychiatric Association [APA], 2022, pp. 301-313; Clauss et al., 2022; Duque & Vasquez, 2015)

This study sought to explore whether trauma-exposed individuals' attentional behaviors (avoidance versus maintenance) when viewing potentially threatening stimuli may be influenced by varying levels of comorbid anxiety and depression. In other words, is variation in symptomology across individuals with PTSD associated with fixation versus avoidance on threatening stimuli? This question led to the creation of three hypotheses: (a) Individuals with PTSD will display enhanced detection of threat (faster orienting to threat) compared to trauma-free controls; (b) Individuals with greater depressive/ruminative

symptoms will be more likely to fixate on threatening stimuli; and (c) Individuals with greater anxiety symptoms will be more likely to avoid.

Methods

Participants

Participants for this study were collected using non-probability sampling. The specific sampling strategy used in this study was convenience sampling. Participants were recruited from Washburn University introductory-level psychology classes for credit towards the fulfillment of a research participation requirement. Participants accessed the study via their class's research participation module on Washburn's Desire 2 Learn online course management system. Participants were grouped as either trauma-free controls or the trauma-present experimental group. The trauma-present group consisted of individuals reporting clinically significant levels of post-traumatic symptoms and did not consist exclusively of individuals with an existing PTSD diagnosis. All participation took place on-campus one-on-one with researchers in the Washburn Psychological Services Clinic.

A power analysis was conducted based on data from Rinck and Becker (2006) (n = 45), which used a similar design as this study and compared eye-tracking data from spider-phobic individuals to non-phobic individuals. With significance criterion $\alpha = .05$ and power = .80, an overall sample size of N=50 is ideal, with $N=25$ in each group (trauma-present vs. trauma-free controls). An initial sample of N=56 was collected. Five participants were excluded in total, four due to errors in eye-tracker calibration and one due to self-reported serious vision impairment. The final sample consisted of N=51, with 17 participants qualifying as trauma-present and 34 as trauma-free controls based on a) report of having experienced a traumatic event consistent with PTSD Criterion A in the DSM-5-TR and b)

scoring above or below the clinical cutoff on a measure of trauma symptom severity (See Appendix A, Table 1 for trauma-present vs. control group anxiety and depression averages). Our sample primarily self-identified as white/Caucasian (*N=29*) and female (*N=33*). Participant ages ranged from 18-41 years old (*M*=20.41, *SD*=4.66).

Materials

Divided Visual Field

Twenty image pairs from the Open Affective Standardized Image Set (OASIS; Kurdi et al., 2017; See Appendix B) were presented on the computer screen in a divided visual field, with one image presented on the left side of the screen and one image presented on the right. The emotional valence of OASIS images are rated on a 1 (Very Negative) -7 (Very Positive) Likert-scale. Image pairs contained one neutral or positively-valenced image (*M* = 5.14, *SD*=.80) and one aversive image (*M* = 2.27, *SD* = .63). Stimuli varied in complexity. When selecting images, preference was given to complex scenes, which were supplemented with less complex scenes as needed. Images were presented in black and white, as individual differences in brightness and color could make one image more salient than another, and therefore more likely to be explored preferentially due to bottom-up attentional processes.

Demographics

Participants completed a brief demographic survey consisting of 7 questions (See Appendix C), in which they will report their demographic information (gender, age, ethnicity, racial identity, past mental health diagnoses, vision, and history of traumatic brain injury). Participants reporting significant uncorrected visual impairments or a history of serious traumatic brain injury were screened out to control for potential atypical viewing behaviors resulting from visual impairment.

Mental Health Symptom Measures

Participants were asked to complete a series of screening measures assessing for the presence of various mental health symptoms: the Beck Anxiety Inventory (BAI), the Beck Depression Inventory (BDI), the Traumatic Life Events Questionnaire (TLEQ), and the PTSD Checklist for DSM-V (PCL-5) (See Appendix D).

The intended use of the BAI by the original authors was to measure the severity of anxious symptoms in a self-report format (Beck et al., 1988). The measure consists of 21 items rated on a 4e-point scale: 0 (no symptoms) to 3 (severe symptoms). Items are summed to obtain a total score, with higher scores reflecting greater symptom severity. The BAI has been found to have excellent internal consistency (α=.92) and correlates well with other established measures of anxiety such as the State-Trait Anxiety Inventory (r=.69). The BAI has$r$=.75.) when administered in 1-week intervals to a subset of the original sample, suggesting this measure is stable despite typical variations in daily stressors (Beck et al., 1988)

The intended use of the BDI by the original authors was to measure the severity of depressive symptoms in a self-report format (Beck et al., 1961). The measure consists of 21 items rated on a 4-point scale: 0 (no symptoms) to 3 (severe symptoms). Items are summed to obtain a total score, with higher scores reflecting greater symptom severity. The BDI has been found to have excellent internal consistency (α = 91), and correlates well with other established measures such as the Minnesota Multiphasic Personality Inventory (r = 0.77). The BDI has also been found to have excellent test-retest reliability (r = 0.93) when administered in 1-week intervals to a subset of the original sample, suggesting the measure is stable despite typical fluctuations in daily mood (Jackson-Koku, 2016; Wang, 2013).

The intended use of the TLEQ by the original authors is to assess for exposure to a wide variety of traumatic events in a self-report format (Kubany et al., 2000). The measure consists of 23 items describing different traumatic events (e.g., Did you see or hear family violence?, Were you ever subjected to uninvited or unwanted sexual attention?) in which responders select either "yes" or "no" to a) if the event happened to them and b) if yes, if the responder experienced intense fear, helplessness, or horror when it happened when the event happened. After selecting "yes" or "no" to each event described, responders select which event they consider the worst. The measure is not scored quantitatively, but rather is assessed qualitatively, with a response of "yes" to both a) if the event happened to them and b) if yes, if the responder experienced intense fear, helplessness, or horror when it happened when the event happened constituting exposure to a clinical trauma. The TLEQ demonstrates moderate inter-rater reliability (K .= .60) and was found to be comparable to a traditionally administered interview assessing for exposure to traumatic events (K =.70) (Gray & Slagle, 2006; Kubany et al., 2000).

The intended use of the PCL-5 (past month version) by the original authors (Blevins et al., 2015) is to measure the severity of PTSD symptoms over the past month in a self-report format. The measure consists of 20 items rated on a 5-point scale: 0 (not at all) to 4 (Extremely). Items are summed to obtain the total score, with higher scores reflecting greater symptom severity and a score of 31-35 used as a clinical cutoff point. The PCL-5 has been found to have excellent internal consistency ($\alpha = 0.94$) and test-retest reliability $r = .82$ when administered in 1-week intervals to a subset of the original sample. The measure correlated positively with related measures of PTSD such as the Detailed Assessment of Posttraumatic Symptoms ($r = 0.84$) and the Posttraumatic Distress Scale ($r = 0.85$) but demonstrated weak

correlations with unrelated measures such as Antisocial and Manic sections of the Personality Assessment Inventory ($r = 0.39$; $r = 0.31$). These results support the ability of the PCL-5 to accurately assess trauma symptoms and to differentiate between symptoms of trauma and unrelated symptoms of other disorders (Blevins et al., 2015; Bovin et al., 2016).

Eye-Tracking Software

Participants' eyes were tracked using GazePoint eye-tracking technology. The Gazepoint device connects to a traditional desktop and should be positioned approximately 40 cm below and approximately 100 cm in front of the participant, angled upwards toward their eyes (Cuve et al., 2022). Participants completed a 9-point calibration before beginning eye-tracking tasks. During calibration, the participant is cued to look at 9 points on the screen in sequence, which is used to ensure accuracy before beginning eye-tracking tasks. For this study, orientation time to the stimuli and gaze duration were measured in seconds.

Design and Procedure

This study will have a mixed-methods quasi-experimental design. Self-report data was collected using Qualtrics, an online survey-building program, while all eye-tracking data was collected using the Gazepoint technology. Participants gave informed consent (See Appendix E), and after initial calibration, began eye-tracking tasks. Participants were instructed to free-view the 20 image pairs for 8 seconds each in randomized order to prevent potential order effects. The side of the screen on which threatening versus non-threatening images appeared was counterbalanced such that threatening images were not always located on the left with non-threatening images on the right, and vice versa. Between image pairs, participants were also prompted to look at a fixation cross in the center of a blank screen to return their gaze to center-screen (See Appendix B). Eye-tracking data were processed using LabScribe Data

Acquisition and Analysis Software (iWorx). For each presented image pair, two areas of interest (AOIs) were defined; one accounting for the entire negatively-valenced image and one for the entire positively-valenced image. Dwell time on each image was quantified as time spent in seconds within each AOI. Immediately after all eye-tracking tasks were completed, participants completed demographic measures and mental health screeners. Lastly, participants were thanked and debriefed. During debriefing, participants were also offered a list of local mental health resources available to them if they experience distress during the study (See Appendix F).

Results

To test the first hypothesis, mean orienting times were compared to the negatively-valenced stimuli between the trauma-present group (M =8.20, SD =5.56) and trauma-free controls (M =7.86, SD =4.77) in a one-tailed independent samples t-test. Orienting time to the negative stimulus was not found to be significantly different between these two groups, t (49) =.228, p =.410.

A Pearson correlation found that BDI (M =12.24, SD = 8.99) and BAI (M =18.90, SD = 12.94) scores were highly correlated (r = .70, p <.001), which is consistent with the current understanding of high comorbidity rates between depression and anxiety disorders. To eliminate the issue of multicollinearity, Hypotheses 2 and 3 were tested individually, using two separate linear regressions.

To test Hypothesis 2, a simple linear regression was conducted examining total gaze-time on the negatively-valenced images and trauma participants' scores on the Beck Depression Inventory. BDI scores were not found to be significantly associated with total gaze time on the negatively-valenced images F (1, 15) =.12, p =.74 with an $R^2$of .008 95% CI [-

1.66, 1.21], nor on positively valanced images, *F (*1, 15) =2.55, *p* =.131 with an $R^2$of .145 [-.196, 1.36].

To test Hypothesis 3, a simple linear regression was conducted examining total gaze-time on the negatively-valenced images and trauma participants' BAI scores. BAI scores were not found to be significantly associated with total gaze time on the negatively-valenced images *F (*1, 15) =.275, *p*=.608 with an $R^2$of .018 [-.594, .982], nor on positively valanced images, *F (*1, 15) =1.2, *p* =.283 with an $R^2$of .076 [-.213, .680].

Exploratory Analyses

We conducted additional analyses examining the relationship between BDI and BAI scores on negative image dwell-time using the entire sample, consisting of both trauma-present and trauma-free control groups. We conducted a simple linear regression examining total gaze-time on the negatively-valenced images and participants' scores on the Beck Depression Inventory. BDI scores showed a trend towards significance on the negatively-valenced images *F (*1, 48) = 3.58, p = .065 with an $R^2$of .069 [032, 1.057]. BDI scores were not found to be significantly associated with total gaze time on positively valanced images, *F (*1, 48) =.663, *p* =.419 with an $R^2$of .014 [-.248, 0.585]. We conducted another simple linear regression examining total gaze-time on the negatively-valenced images and participants' BAI scores. BAI scores were not found to be significantly associated with total gaze time on the negatively-valenced images *F (*1, 48) =.80, *p* =.37 with an $R^2$of .016 [-.215, .560], nor on positively valanced images, *F (*1, 48) =.461, *p* =.501 with an $R^2$of .010 [-.191, .386].

Discussion

While the current study did not find support for our three hypotheses, the exploratory analysis indicated some potentially interesting findings. Hypothesis one predicted that

individuals with trauma symptoms would display enhanced detection of threat (faster orienting to threat) compared to trauma-free controls. However, we found no significant differences in negative orienting time between our control and trauma-present participants. Hypothesis two predicted that individuals with greater depressive symptoms would be more likely to fixate on threatening stimuli, that is, spend longer dwelling on negative images than positive images. However, higher depression scores were not found to be significantly associated with longer dwell-time on negatively-valenced images in the trauma-present group. Similarly, Hypothesis three predicted that higher anxiety scores would be associated with avoidance of negative stimuli, that is, individuals with higher anxiety scores would spend less time looking at the aversive images. However, anxiety scores were not found to be significantly associated with shorter dwell-time on negatively-valenced images.

The results of our exploratory analyses using the entire sample (both trauma-present and trauma-free groups) were also nonsignificant. However, interestingly, the analysis of BDI scores on negative gaze time for the total sample does show a trend toward significance, perhaps indicating that analyses conducted using a larger sample size may yield significant results. While not statistically significant, this trend in the data suggests that, generally, individuals with higher levels of depression may fixate longer on negatively-valenced images. This is consistent with existing literature examining eye-movement patterns in depressed individuals and also aligns well with the current understanding of the ruminative nature of depression (Armstrong et al., 2013; Lazarov et al., 2022).

Conversely, while anxious individuals' tendency to visually avoid threatening stimuli is similarly established in the literature (Clauss et al., 2022), the current study found no significant evidence to suggest that higher anxiety scores predicted shorter dwell-time on

negatively-valenced stimuli. One possible explanation lies in the content of the stimuli presented in the current study. Participants were presented with a variety of images depicting a wide range of potentially distressing content (e.g., tornados, spiders, war images) and were not specific to each participant's individual anxieties unlike in some previous studies, which presented anxious individuals with images specific to the focus of their anxieties (e.g., presenting images of spiders to spider-phobics or presenting negative faces to socially anxious individuals; Lima & Toro, 2019; Rinck & Becker, 2006).

Similarly, research on viewing patterns in trauma-exposed populations often centers around military or war-exposed populations or survivors of sexual violence. The stimuli presented in these studies were, likewise, often war-related or consisting of threatening human faces (Armstrong et al., 2013; Kimble et al., 2010; Lazarov et al., 2022; Sipos et al, 2014). Meanwhile, participants in the current study reported a wide variety of traumatic events, and the threatening content of the images they were presented with varied widely. Thus, it may be that even very negative images did not elicit the same emotional and behavioral response as trauma-specific images have in some previous studies.

Overall, these findings do not suggest individual differences in anxiety and depression symptoms are significant predictors of fixation versus avoidance in individuals with trauma symptoms. While previous studies have acknowledged the rift in the literature as to whether individuals with trauma symptoms tend to fixate on or avoid negative stimuli (Lazarov et al., 2019; Kimble & Hyatt, 2019), this study appears to be one of the first seeking to explain this divide—the topic remains almost entirely unexplored. No evidence was found for individual differences in symptomatology as a predictor of viewing behavior in this sample, however,

this finding suggests that it may be possible to "rule out" symptom variation as an explanation for the fixation versus avoidance divide. Further study is necessary to clarify the issue.

Limitations

While this study serves to lay the groundwork for future exploration into individual variations in attention in individuals with trauma symptoms, there were several limitations in our sample and procedure. Firstly, the sample used presents limitations to the generalizability of these results. Our sample was collected exclusively from introductory-level psychology students at Washburn University, a relatively small Midwestern university, and participants consisted primarily of white/Caucasian cisgender females in early adulthood. Furthermore, our sample size was considerably limited. While the overall target sample size of *n=50* was reached, only 17 of those participants fell into the trauma-present condition with the ideal group sample size being *n=25*. Future exploration of this topic would benefit from a more evenly distributed sample, both in terms of demographic features and group makeup.

Enhanced detection of vigilance toward threat has been noted consistently in the literature examining attentional patterns in trauma-exposed populations (Kimble et al., 2023). Thus, our lack of significant findings for our first hypothesis is somewhat unexpected. Another limitation of this study is associated with our testing of Hypothesis one. Following examination of eye-tracking data, several participants (n =10) displayed a tendency to orient initially to one side of the screen more often than the other regardless of the valence of the image presented on that side of the screen. Participants displaying biases toward one side of the screen varied in which side they tended to orient to first. Screen-side bias was not described in any studies used for our review of current literature, and the presentation of a central fixation point (also used in this study) is the typical manner of controlling for

confounds in orienting behaviors (Bourne, 2006; Rinck & Becker, 2006). If this study were to be replicated in the future, it may be that presenting image pairs with space on the screen between each image rather than presenting the images touching each other side by side may reduce the presence of screen-side bias, as participants who do not look directly at the center of the fixation cross would not be automatically "counted" as having oriented to a particular image.

Finally, while eye-tracking is rapidly becoming a highly popular and relied-upon measure of attention across a wide variety of fields, the technology is comparatively young. Eye-tracking represents a far less crude, far more objective behavioral measure of attention than those used in years before eye-tracking technology was readily available (Borys & Plechawska-Wójcik, 2017; Cummins, 2017). As described in the literature review for the current study, dot-probe tasks have often been used as a measure of attention in many earlier—and some current—studies of attentional biases as it relates to detection of threat (Bar-Haim et al., 2010; Sipos et al, 2014). The dot-probe task involves cueing participants to attend to a target appearing on different regions of a screen, with targets paired to stimuli. This paradigm has long been regarded as a gold-standard measure of attentional bias. However, the reliability of the dot-probe has come under scrutiny in recent years, and eye-tracking has since surpassed it as the gold-standard measure of attention (Bar-Haim et al., 2010; Kappenman et al., 2014). Essentially, while the use of eye-tracking technology in the present study reflects the current standard of measurement of attentional bias, it is a different, if more reliable, measure than the dot-probe paradigm used in many foundational studies in this area of research.

Future Directions

This study examined an as-yet largely unexplored area of research. While we did not uncover an explanation for the maintenance versus avoidance rift in the current literature, this study may serve as a stepping-off point for future study. Firstly, examining our hypotheses using a larger, more evenly distributed sample size would likely be useful—even if no evidence in support of these hypotheses is found, it may serve to "rule out" individual symptomatology as an explanation. Furthermore, if it is not anxiety and depression symptomatology that determines gaze maintenance versus avoidance on threatening stimuli, the question remains - what does? Further exploration of attentional patterns during scene viewing in individuals with trauma history may serve to enrich our understanding of how trauma exposure functions at the individual level. Consider again our previous example of a gorilla marching through a basketball game. What we look at, what we pay attention to, and subsequently what information we take in is thoroughly linked to how we understand the world. Therefore, gaining a deeper understanding of where trauma-exposed individuals allocate their attention and why they attend the way they do offers insight into their perceptions of the world around them. The greater the insight researchers and clinicians have into how this population perceives the world, the better-informed future treatment and study will be.

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Appendix A

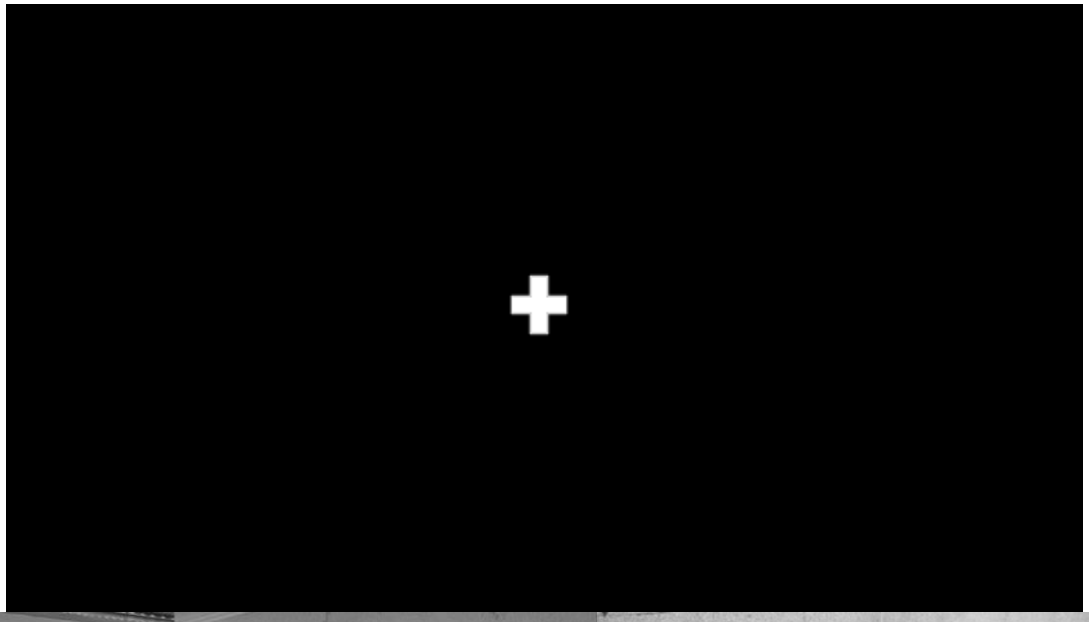
Table 1

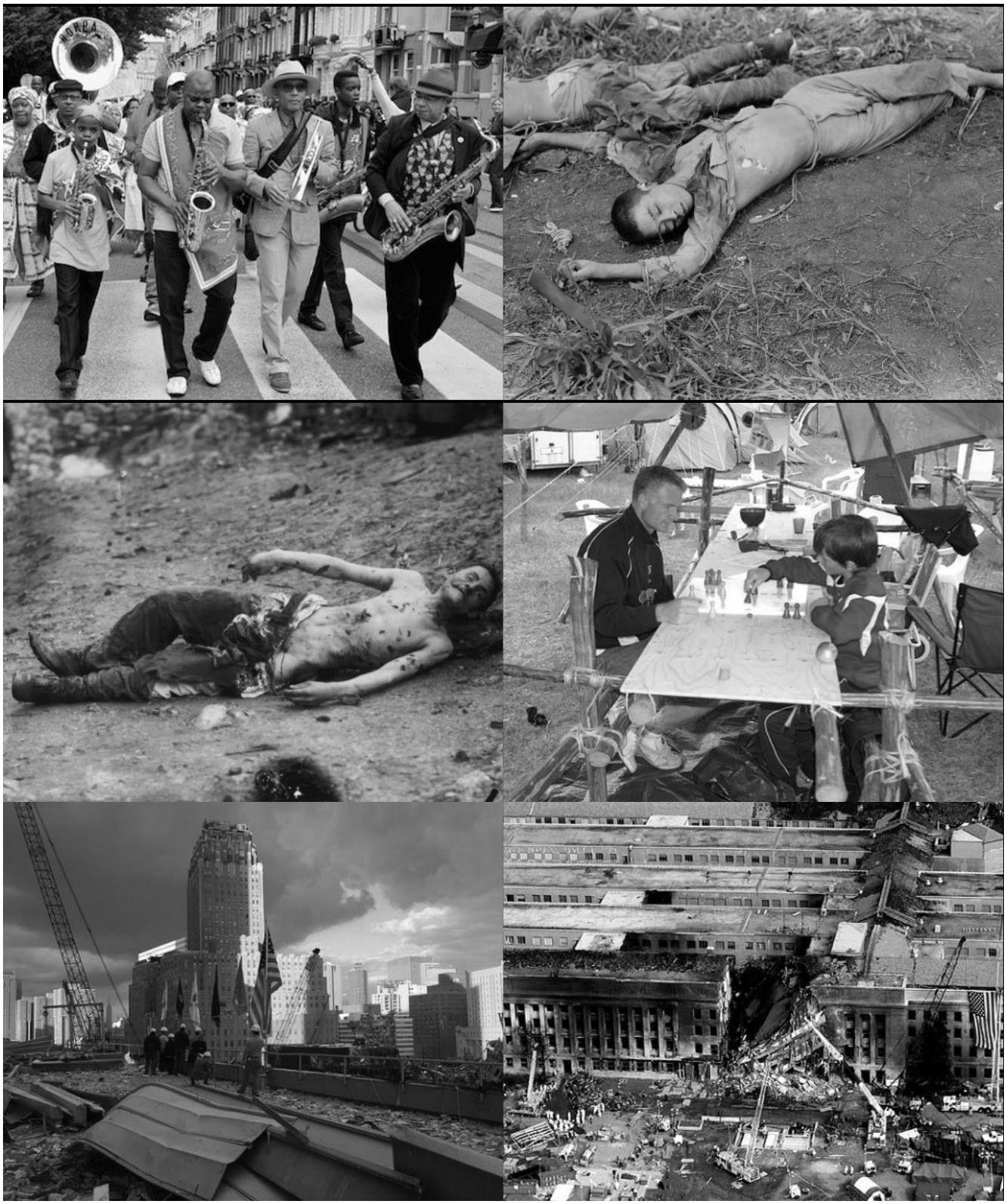
Average Anxiety and Depression Scores Among Control and Trauma-Present Groups

Group		Beck Depression Inventory	Beck Anxiety Inventory
Control	*M*	8.03	14.08
	SD	5.79	9.964878
Trauma-Present	*M*	21.12	27.44
	SD	7.622636	13.78926

Note. The table above shows averages and standard deviations for scores on the Beck Depression Inventory and Beck Anxiety Inventory for trauma-present participants and trauma-free controls.

Appendix B



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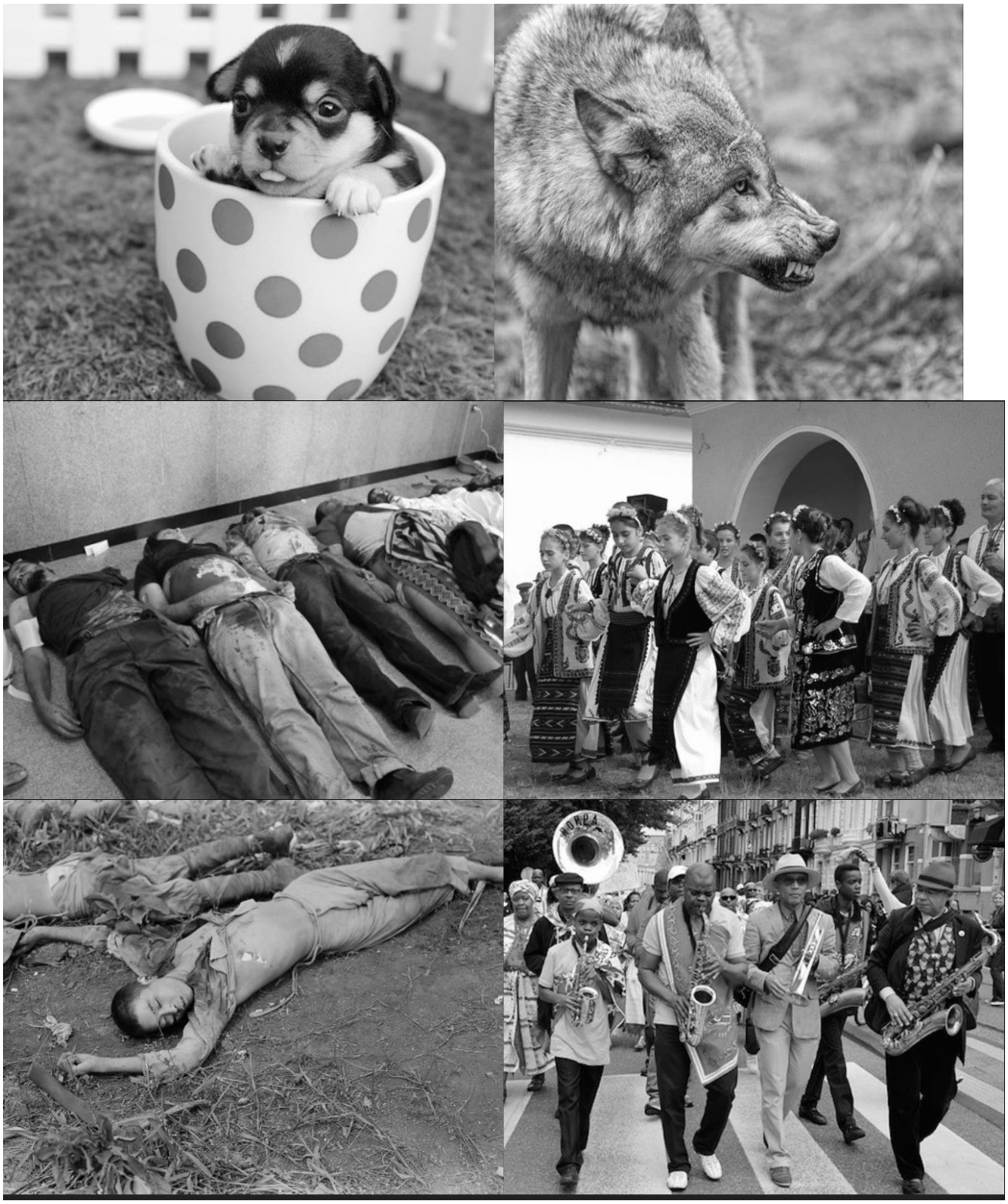


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Appendix C

Demographic Survey:

What is your gender identity? Please select all that apply:

A. Cisgender Female
B. Cisgender Male
C. Non-binary/Gender Non-conforming
D. Transgender Female
E. Transgender Male
F. Intersex
G. Other: _____
H. I prefer not to answer

What is your age? _____

What is your race/ethnicity? Select all that apply.

A. White/Caucasian
B. Asian/Eastern
C. Asian/Indian
D. Hispanic
E. Black/African American
F. Native American
G. Multiracial
H. Other: _____
I. I prefer not to answer

Have you ever been diagnosed with a mental health disorder?

A. No
B. Yes (If yes, please describe): _____

Do you have any major uncorrected vision impairments?

A. No
B. Yes (If yes, please describe): _____

Have you ever experienced a major brain injury such as a stroke, major concussion, etc.?

A. No
B. Yes (If yes, please describe): _____

How were you recruited for this study?

A. I am a PY100 student
B. Flyer/Poster on campus
C. Other: _____

Appendix D

Beck Anxiety Inventory (BAI)

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month. Circle one number in the corresponding space in the row next to each symptom.

1.
   - 0 I do not feel numbness or tingling
   - 1 I mildly feel numbness or tingling but it doesn't bother me much
   - 2 I moderately feel numbness or tingling and it wasn't pleasant
   - 3 I severely feel numbness or tingling and it bothered me a lot

2.
   - 0 I do not experience feeling hot
   - 1 I mildly experience feeling hot but it doesn't bother me much
   - 2 I moderately experience feeling hot and it wasn't pleasant
   - 3 I severely experience feeling hot and it bothered me a lot

3.
   - 0 I do not feel wobbliness in legs
   - 1 I mildly experience wobbliness in legs but it doesn't bother me much
   - 2 I moderately experience wobbliness in legs and it wasn't pleasant at times
   - 3 I severely experience wobbliness in legs and it bothered me a lot

4.
   - 0 I am able to relax
   - 1 I am mildly unable to relax but it doesn't bother me much
   - 2 I am moderately unable to relax and it wasn't pleasant at times
   - 3 I am severely unable to relax and it bothered me a lot

5.
   - 0 I do not have a fear of the worst happening
   - 1 I mildly have a fear of the worst happening but it doesn't bother me much
   - 2 I moderately have a fear of the worst and it is not pleasant at time
   - 3 I severely have a fear of the worst and it bothers me a lot

6.
   - 0 I do not feel dizziness or lightheadedness
   - 1 I mildly feel dizziness or lightheadedness but it doesn't bother me much
   - 2 I moderately feel dizziness or lightheadedness and it doesn't feel pleasant at times
   - 3 I severely feel dizziness or lightheadedness and it bothers me a lot

7.
   - 0 I do not feel my heart pounding/racing

1 I mildly feel my heart pounding/racing but it doesn't bother me much
2 I moderately feel my heart pounding/racing and it doesn't feel pleasant at times
3 I severely feel my heart pounding/racing and it bothers me a lot

8.
0 I do not feel unsteady
1 I mildly feel unsteady but it doesn't bother me much
2 I moderately unsteady and it doesn't feel pleasant at times
3 I severely feel unsteady and it bothers me a lot

9.
0 I do not feel terrified or afraid
1 I mildly feel terrified or afraid but it doesn't bother me much
2 I moderately feel terrified or afraid and it doesn't feel pleasant at times
3 I severely feel terrified or afraid and it bothers me a lot

10.
0 I do not feel nervous
1 I mildly feel nervous but it doesn't bother me much
2 I moderately feel nervous and it doesn't feel pleasant at times
3 I severely feel nervous and it bothers me a lot

11.
0 I do not have a feeling of choking
1 I mildly have a feeling of choking but it doesn't bother me much
2 I moderately have a feeling of choking and it doesn't feel pleasant at times
3 I severely have a feeling of choking and it bothers me a lot

12.
0 I do not experience hands trembling
1 I mildly experience hands trembling but it doesn't bother me much
2 I moderately experience hands trembling and it doesn't feel pleasant at times
3 I severely experience hands trembling and it bothers me a lot

13.
0 I do not feel shaky/unsteady
1 I mildly feel shaky/unsteady but it doesn't bother me much
2 I moderately feel shaky/unsteady and it doesn't feel pleasant at times
3 I severely feel shaky/unsteady and it bothers me a lot

14.
0 I do not have a fear of losing control
1 I mildly have a fear of losing control but it doesn't bother me much
2 I moderately have a fear of losing control and it doesn't feel pleasant at times
3 I severely have a fear of losing control and it bothers me a lot

15.
0 I do not have difficulty in breathing
1 I mildly have difficulty in breathing but it doesn't bother me much

2 I moderately have difficulty in breathing and it doesn't feel pleasant at times
3 I severely have difficulty in breathing and it bothers me a lot

16.
0 I do not have a fear of dying
1 I mildly have a fear of dying but it doesn't bother me much
2 I moderately have a fear of dying and it doesn't feel pleasant at times
3 I severely have a fear of dying and it bothers me a lot

17.
0 I do not feel scared
1 I mildly feel scared but it doesn't bother me much
2 I moderately feel scared and it doesn't feel pleasant at times
3 I severely feel scared and it bothers me a lot

18.
0 I do not experience indigestion
1 I mildly experience indigestion but it doesn't bother me much
2 I moderately experience indigestion and it doesn't feel pleasant at times
3 I severely experience indigestion and it bothers me a lot

19.
0 I do not feel faint/lightheaded
1 I mildly feel faint/lightheaded but it doesn't bother me much
2 I moderately feel faint/lightheaded and it doesn't feel pleasant at times
3 I severely feel faint/lightheaded and it bothers me a lot

20.
0 I do not have face flushed
1 I mildly have face flushed but it doesn't bother me much
2 I moderately have face flushed and it doesn't feel pleasant at times
3 I severely have face flushed and it bothers me a lot

21.
0 I do not have hot/cold sweats
1 I mildly have hot/cold sweats but it doesn't bother me much
2 I moderately hot/cold sweats and it doesn't feel pleasant at times
3 I severely have hot/cold sweats and it bothers me a lot

Beck Depression Inventory

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! If several statements in the group seem to apply equally well, you may select more than one. **Be sure to read all the statements in each group before making your choice.**

1 ☐I do not feel sad.
☐ I feel sad.
☐ I am sad all the time and I can't snap out of it.
☐ I am so sad or unhappy that I can't stand it.

2 ☐ I am not particularly discouraged about the future.
☐ I feel discouraged about the future.
☐ I feel I have nothing to look forward to.
☐ I feel that the future is hopeless and that things cannot improve.

3 ☐ I do not feel like a failure.
☐ I feel that I have failed more than the average person.
☐ As I look back on my life, all I can see is a lot of failures.
☐ I feel I am a complete failure as a person.

4 ☐ I get as much satisfaction out of things as I used to.
☐ I don't enjoy things the way I used to.
☐ I don't get real satisfaction out of anything anymore.
☐ I am dissatisfied or bored with everything.

5 ☐ I don't feel particularly guilty.
☐ I feel guilty a good part of the time.
☐ I feel quite guilty most of the time.
☐ I feel guilty all of the time.

6 ☐ I don't feel I am being punished.
☐ I feel I may be punished.
☐ I expect to be punished.
☐ I feel I am being punished.

7 ☐ I don't feel disappointed in myself.
☐ I am disappointed in myself.
☐ I am disgusted with myself.
☐ I hate myself.

8 ☐ I don't feel I am any worse than anybody else.
☐ I am critical of myself for my weaknesses or mistakes.
☐ I blame myself all the time for my faults.
☐ I blame myself for everything bad that happens.

9 ☐ I don't have any thoughts of killing myself.
☐ I have thoughts of killing myself, but I would not carry them out.
☐ I would like to kill myself.
☐ I would kill myself if I had the chance.

10☐I don't cry any more than usual.
☐ I cry more now than I used to.
☐ I cry all the time now.
☐ I used to be able to cry, but now I can't cry even though I want to.

11☐I am no more irritated now than I ever am.
☐ I get annoyed or irritated more easily than I used to.
☐ I feel irritated all the time now.
☐ I don't get irritated at all by the things that used to irritate me.

12 ☐ I have not lost interest in other people.
☐ I am less interested in other people than I used to be.
☐ I have lost most of my interest in other people.
☐ I have lost all of my interest in other people.

13 ☐ I make decisions about as well as I ever could.
☐ I put off making decisions more than I used to.
☐ I have greater difficulty in making decisions than before.
☐ I can't make decisions at all anymore.

14 ☐ I don't feel I look any worse than I used to.
☐ I am worried that I am looking old or unattractive.
☐ I feel that there are permanent changes in my appearance that make me look unattractive.
☐ I believe that I look ugly.

15 ☐ I can work about as well as before.
☐ It takes an extra effort to get started at doing something.
☐ I have to push myself very hard to do anything.
☐ I can't do any work at all.

16 ☐ I can sleep as well as usual.
☐ I don't sleep as well as I used to.
☐ I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
☐ I wake up several hours earlier than I used to and cannot get back to sleep.

17 ☐ I don't get more tired than usual.
☐ I get tired more easily than I used to.
☐ I get tired from doing almost anything.
☐ I am too tired to do anything.

18 ☐ My appetite is no worse than usual.
☐ My appetite is not as good as it used to be.
☐ My appetite is much worse now.
☐ I have no appetite at all anymore.

19 ☐ I haven't lost much weight, if any, lately.
☐ I have lost more than 5 pounds.
☐ I have lost more than 10 pounds.
☐ I have lost more than 15 pounds.
I am purposely trying to lose weight by eating less
m *Yes* m *No*

20 ☐ I am no more worried about my health than usual.
☐ I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
☐ I am very worried about physical problems and its hard to think about much else.
☐ I am so worried about my physical problems that I cannot think about anything else.

21 ☐ I have not noticed any recent change in my interest in sex.
☐ I am less interested in sex than I used to be.
☐ I am much less interested in sex now.
☐ I have lost interest in sex complete

Traumatic Life Events Questionnaire

The purpose of this questionnaire is to identify important life experiences that can affect a person's emotional well-being or later quality of life. The events listed below are far more common than many people realize. Please read each question carefully and mark the answers that best describe your experience.

1. **Have you ever experienced a natural disaster (a flood, hurricane, earthquake, etc.)?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

2. **Were you involved in a motor vehicle accident for which you received medical attention or that badly injured or killed someone?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

3. **Have you been involved in any other kind of accident where you or someone else was badly hurt?**
(examples: a plane crash, a drowning or near drowning, an electrical or machinery accident, an explosion, home fire, chemical leak, overexposure to radiation or toxic chemicals) Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

4. **Have you lived, worked, or had military service in a war zone?** Yes / No
If yes, were you ever exposed to warfare or combat? (for example: in the vicinity of a rocket attack or people being fired upon; seeing someone get wounded or killed) Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

5. **Have you experienced the sudden and unexpected death of a close friend or loved one?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

6. **Has a loved one ever survived a life threatening or permanently disabling accident, assault, or illness?**
(examples: spinal cord injury, rape, cancer, serious heart condition, life threatening virus) Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

7. **Have you ever had a life threatening illness?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

8. **Have you been robbed or been present during a robbery where the robber(s) used or displayed a weapon?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

9. **Have you ever been hit or beaten up and badly hurt by a stranger or by someone you didn't know very well?** Yes /No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

10. **Have you seen a stranger (or someone didn't know very well) attack or beat up someone and seriously injure or kill them?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

11. **Has anyone threatened to kill you or cause you serious physical harm?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes no

12. While growing up: **Were you physically punished in a way that resulted in bruises, burns, cuts, or broken bones?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

13. While growing up: **Did you see or hear family violence?** (such as your father hitting your mother; or any family member beating up or inflicting bruises, burns or cuts on another family member) Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

14. **Have you ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend, or some other intimate partner?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

15. Before your 13th birthday: **Did anyone--who was at least 5 years older than you-- touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

16. Before your 13th birthday: **Did anyone touch sexual parts of your body or make you touch sexual parts of their body--against your will or without your consent?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

17. After your 13th birthday and before your 18th birthday: **Did anyone touch sexual parts of your body or make you touch sexual parts of their body--against your will or without your consent?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

18. After your 18th birthday: **Did anyone touch sexual parts of your body or make you touch sexual parts of their body--against your will or without your consent?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

19. **Were you ever subjected to uninvited or unwanted sexual attention?** (***other than*** sexual contact covered by items 15, 16, 17, or 18) (examples: touching, cornering, pressure for sexual favors, verbal remarks) Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

20. **Has anyone stalked you**--in other words: **followed you or kept track of your activities--causing you to feel intimidated or concerned for your safety?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

21. **Have you or a romantic partner ever had a miscarriage?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

22. **Have you or a romantic partner ever had an abortion?** Yes / No
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

23. **Have you experienced (or seen) any other events that were life threatening, caused serious injury, or were highly disturbing or distressing?** (examples: lost in the wilderness; a serious animal bite; violent death of a pet; being kidnapped or held hostage; seeing a mutilated body or body parts) Yes / No
Please describe_____
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

24. **The events listed below correspond to items #1 to #23 on this questionnaire. If any of these events happened to you, CIRCLE the number of the *ONE* event (only 1) that CAUSES YOU THE MOST DISTRESS?**

1. Natural disaster	9. Assaulted by acquaintance/stranger	17. As a teen: unwanted sexual contact
2. Motor vehicle accident	10. Witnessed severe assault to acquaintance/stranger	18. As an adult: unwanted sexual contact
3. "Other" kind of accident	11. Threatened with death/serious harm	19. Sexual harassment
4. Combat or warfare	12. Growing up: witnessed family violence	20. Stalked
5. Sudden death friend/loved one	13. Growing up: physically punished	21. Miscarriage
6. Life-threatening/disabling event to loved one	14. Physically hurt by intimate partner	22. Abortion
7. Life threatening illness	15. Before 13: sexual contact--someone 5 years older	23. Some "other" traumatic event
8. Robbery/weapon used	16. Before 13: unwanted sexual contact	24. None of these events happened to me

PCL-5

Instructions: **Below is a list of problems that people sometimes have in response to a very stressful experience. Keeping your worst event in mind, please read each problem carefully and then select one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.**

Your worst event: _____

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4

16. Taking too many risks or doing things that could cause you harm?	0 ○	1 ○	2 ○	3 ○	4 ○
17. Being "superalert" or watchful or on guard?	0 ○	1 ○	2 ○	3 ○	4 ○
18. Feeling jumpy or easily startled?	0 ○	1 ○	2 ○	3 ○	4 ○
19. Having difficulty concentrating?	0 ○	1 ○	2 ○	3 ○	4 ○
20. Trouble falling or staying asleep?	0 ○	1 ○	2 ○	3 ○	4 ○

PCL-5 (18 August 2023)

Appendix E

Informed Consent

The Department of Psychology supports the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate you are free to withdraw at any time, without penalty.

Purpose: The purpose of this project is to examine individuals' mental health symptoms.
Isabella.
Participation: You will view a series of images on the computer screen and complete various mental health surveys. This study is expected to take approximately 1-2 hours to complete.

Benefits and rights: All participants may learn about the psychological research process through your participation. PY100 students will earn 30 points of credit towards your Psychological Research Activities requirement.

Expected risks: Some of the images presented in this study may be distressing. If any images or survey questions arouse strong emotions, you may choose to not answer the question(s) or stop participating at any time without explanation or penalty.

Extent of confidentiality: Your responses will be anonymous. At no time will your personal data be accessible. Your name and identity will not be associated in any way with the research findings—once your responses are entered into a secure statistical program, data will be examined in aggregate, such that no individual's responses will be traceable from the products of this work, such as journal articles and presentations.

Alternatives: Alternative options to earn points towards your PY100 Psychological Research Activities requirement are available, including participation in other studies or completion of a written assignment. Please see your PY100 syllabus for details.

Do not hesitate to ask any questions about the study at any time. Thank you for your participation!

Sincerely,
Isabella Hubbell (Principal Investigator and contact for any problems/questions)
isabella.hubbell@washburn.edu
(785)-670-1964
Henderson 211

IRB Information:
IRB Number: #00-00
IRB Address/Contact:
Marian Jamison, Ph.D. (IRB Director)
irb@washburn.edu
Whiting Field House Room 367

If you do not agree with these terms, please inform the researcher and stop participation now.

By signing below, I verify that I have read and understand this consent form, and willingly agree to participate in this study under the terms described.

Your Signature: _____ Date: _____

Your Name (printed): _____

Please retain a copy of this consent form for your records.

BY SELECTING:

YES - I verify that I have read and understand this consent form, and willingly agree to participate in this study under the terms described.

NO - I verify that I have read and understand this consent form and do NOT wish to participate in this study under the terms described.

Please retain a copy of this consent form for your records.

Appendix F

Debriefing:

Thank you for participating in this experiment!

This study was examining the mental health symptoms you may or may not have experienced, and your eye-movement patterns when viewing negative and neutral images. Your responses will be anonymously entered into a secure statistical program, and your individual responses will not be traceable from any products of this work such as journal publications and research presentations. If you have any further questions regarding this experiment, please feel free to contact the Principle Investigator: Isabella Hubbell (isabella.hubbell@washburn.edu). Additionally, we understand that the images presented in this experiment may have been distressing. If you are experiencing distress following this study, please refer to the list of mental health resources provided below.

Thank you again for your participation in this study!

Mental Health Resources On Campus:
Washburn Psychological Services Clinic
Washburn University, Henderson Hall 111
785.670.1750
$10 per session (negotiable fee)

Washburn Counseling Services
Washburn University, Kuehne Hall 200
785.670.3100
Free to students with ID
*Students may speak with a counselor at ANY time

Washburn Campus Advocate, Molly Steffes-Herman
Washburn University, Kuene Hall 200
785.670.3100
Free to students

Mental Health Resources Off-Campus:
Valeo Behavioral Health Care
330 SW Oakley, Topeka, KS
785.233.1730
KU Psychological Services Clinic
University of Kansas, Fraser Hall 230, Lawrence KS
785.864.4121
Fees Vary

Kansas City Center for Anxiety Treatment (KCCAT)
10555 Marty St., Suite 100, Overland Park, KS
913.649.8820
Fees Vary

Crisis Services:

911 or 988 (National Suicide Hotline)

Washburn Police
Washburn University, Morgan Hall 135
785.670.1153 (call or text) or 911

Valeo Behavioral Healthcare Crisis (24-hour)
400 SW Oakley, Topeka, KS
785.234.3300 (Crisis Line) 785.234.3448 (Detox Line)