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Gender-Based Trauma Among Female University Students: A Survey of Psychological Impact, Coping, and Community Awareness

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ABSTRACT

Gender-based violence is both a persistent public health crisis and a serious violation of human rights. The World Health Organization estimates that approximately one in three women worldwide experience physical and/or sexual violence during their lifetime. Exposure to such violence has been associated with a wide range of psychological, cognitive, physical, and social consequences. Although existing neurobiological research has identified associations between trauma and alterations in brain regions involved in emotional regulation, memory, and executive functioning, the present study does not directly assess neurological or physiological outcomes. Instead, it examines female university students' self-reported experiences of gender-based trauma, its perceived psychological impact, their coping responses, and their awareness of available community support.

An original survey was administered to 30 female undergraduate students. Participants reported experiences involving psychological, physical, sexual, and economic forms of violence and described their perceived effects on emotional well-being, daily functioning, and sense of safety. The survey also explored coping strategies, help-seeking behaviors, and knowledge of institutional and community resources. The findings indicate that gender-based trauma may have substantial and multidimensional consequences for students' psychological well-being, while also revealing barriers to disclosure and support seeking. Because the study relies on self-reported data and includes no neural, endocrine, or physiological measures, its findings should be interpreted as evidence of perceived psychological and psychosocial impact rather than direct neurological effects. The study highlights the need for trauma-informed university services, greater awareness of support resources, and future interdisciplinary research incorporating validated psychological assessments and physiological measures. (Meneses Meneses, Fernandez-Gonzalo, & Jodar Vicente, 2023).

Keywords: Gender-based violence, trauma, public health, neuroscience, psychological impact

INTRODUCTION

Understanding Trauma

Definition of Trauma

Definition of trauma includes responses to one time actions such as accidents, natural disasters, crimes, surgeries, deaths, and other violent events and repetitive experiences like child abuse, neglect, combat, urban violence, concentration camps, battering relationships, and enduring deprivation. Particularly, trauma can be defined as the experience of the survivor. It is also important to underline that same experience may have different effects on individuals, so it is impossible to make a generalization about traumatic experiences (Meneses Meneses, Fernandez-Gonzalo, & Jodar Vicente, 2023).

Types of Trauma

Trauma has different forms. There are broad differences amoung people who experience it, so it is essential to think broadly about trauma (Giller, 2011).

Single Blow vs. Repeated Trauma

One-time traumatic events can certainly produce trauma reactions but most of the time, the traumatic experiences that result in the most serious mental health problems are prolonged and repeated. If the trauma itself is repetitive the problems are increased. Especially when the trauma caused deliberately with a person on whom the victim is dependent (Giller, 2011).

Table 1: Single Blow Trauma Types

Natural disasters	Earthquakes, hurricanes, floods, volcanoes, etc.
Closely related are *technological disasters*	Auto and plane crashes, chemical spills, nuclear failures, etc. Technological disasters are more socially divisive because there is always energy given towards finding fault and blaming.
Criminal violence	Single blow traumas such as robbery, rape and homicide, which not only have a great impact on the victims, but also on witnesses, loved ones of victims, etc. (Interestingly, there is often overlap between single blow and repeated

	trauma, because a substantial majority of victimized women have experienced more than one crime.) Unfortunately, traumatic effects are often cumulative.

(Giller, 2011)

Psychological Consequences of Trauma

When we observe the individuals who experienced any type of trauma we can notice that individuals who coped at the time of their traumatic exposure became unwell at a later date (McFarlane, 2010). The connection between acute post-traumatic symptoms and the emergence of PTSD is an ongoing issue and reflect clinical priority. Based on the current studies majority of people who develop PTSD do not meet the diagnostic criteria for an acute stress disorder (Bryant, Creamer, & O'Donnell, 2008). On the other hand, individuals who have an acute stress disorder are likely to diagnosed as PTSD (Giller, 2011).

Long-term studies of victims of trauma indicated that it is only a matter of time for a individual to show sufficient symptoms in order to warrant a clinical diagnosis (McFarlane, Atchison, & Yehuda, 1997). In a study of several injured US troops who were assessed at one month, 4 months and 7 months showed similar responses (Southwick, Morgan, & Darnell, 1995). The results of the study approved that 78.8% who had a disorder at 7 months did not attract a diagnosis at one month (Grieger, Cozza, & Ursano, 2006). DSM-IV defined delayed PTSD (American Psychiatric Association, 1994) as a disorder meeting the diagnostic criteria for PTSD which is present after a post-trauma adjustment period of at least 6 months during which diagnostic criteria were absent or sub-threshold (Buckley, Blanchard, & Hickling, 1996). Another review highlight the confusion caused by different definitions of delayed PTSD (Andrews, Brewin, & Philpott, 2007). For instance one of these different concepts include an individual who has had sub-syndromal symptoms that have subsequently crossed a threshold of clinical severity as well as an individual who has been asymptomatic and then at some later point developed the disorder. This type of delayed PTSD indicates how a traumatic experience may appear dormant but may activate at some future point. There are many questions upon when and how this sub-clinical state is triggered into a full-blown syndrome of PTSD but one of the most recent evidence suggests that sub-clinical symptoms leave the individual at risk of progressive activation with further environmental stress or trauma exposure (McFarlane, 2010).

Neurobiological Effects of Trauma

PTSD includes neurochemical features such as catecholamine, serotonin, amino acid, peptide, and opioid neurotransmitters, each of which is found in brain circuits that regulate stress and fear responses (Sherin & Nemeroff, 2011).

a) The Catecholamines

The Catecholamines includes dopamine (DA) and norepinephrine (NE). Increased urinary excretion of DA and its metabolite has been observed in patients with PTSD. Several studies shows that there is a correlation between exposure to stressors and DA release. Even though it is unclear that if DA metabolism effected by PTSD, the genetic variations in the DA system is useful in order to regulate the risk for PTSD. On the other hand, NE is an essential mediator for autonomic stress responses. Most of the NE in the CNS is generated from neurons of the locus ceruleus (LC) that activate the various brain regions involved in the stress response, including the prefrontal cortex, amygdala, hippocampus, hypothalamus, periaqueductal grey, and thalamus. There are several evidences for a circuit connecting the amygdala and hypothalamus with the LCIn addition, there is evidence for a feed-forward circuit connecting the amygdala and hypothalamus with the LC. CRH and NE interact to increase fear conditioning and encoding of emotional memories, enhance arousal and vigilance, and integrate endocrine and autonomic responses to stress. This cascade is inhibited by glucocorticoids (Farbstein et al., 2021). Stress-induced sympathetic nervous system activation results in the release of NE and epinephrine from the adrenal medulla, this increased release of NE and changes in blood flow are resulted in fight-or-flight behavior. Postsynaptic α_1 β_1, and β_2 receptors mediate the effects of NE. For instance, the α_2 receptor serves as a presynaptic autoreceptor inhibiting NE release. Because of the diversity of roles which NE is responsible for, NE has been a central focus of many studies investigating the pathophysiology of PTSD (Sherin & Nemeroff, 2011).

b) Serotonin

Serotonin (5HT), is a monoamine neurotransmitter. It synthesized from the amino acid tryptophan. 5HT is responsible for regulating sleep, appetite, sexual behavior, aggression/impulsivity, motor function, analgesia, and neuroendocrine funtion. Given its connectivity and broad homeostatic role, 5HT has been involved in the modulation of affective and stress responses, as well as a role in PTSD. Even though the exact mechanism is not fully understood, the effects of 5HT stress responses vary according to stressor intensity, brain region, and receptor type. 5HT neurons of the dorsal raphe mediate anxiogenic effects via $5HT_2$ receptors through projections to the amygdala and hippocampus. On the other hand, 5HT neurons from the median raphe are responsible for mediating anxiolytic effects, facilitate extinction and suppress encoding of learned associations via $5HT_{1A}$ receptors. Repetitive exposure to trauma activates Chronic exposure to stressors induces upregulation of $5HT_2$ and downregulation of $5HT_{1A}$ receptors (Sherin & Nemeroff, 2011). There is a interaction between the 5HT system and CRH&NE systems in order to coordinate affective and stress responses (Herzog, Whitworth, & Scott, 2020) (Gresko, Marazziti, Piccinni, Mucci, & Loganovsky, 2018). Indirect evidence indicates that there is a possible role for 5HT in PTSD related behaviors including impulsivity, hostility, aggression, depression, and suicidally. A recent controversial study suggests that a street drug called 3,4-Methylenedioxymetharnphetamine, which activates central serotonin transmission, has therapeutic potential in the treatment of PTSD (Yap, 2018). Taken together, altered 5HT transmission may contribute to symptoms of PTSD including hypervigilance,

increased startle, impulsivity, and intrusive memories, though the exact roles and mechanisms remain uncertain. (Sherin & Nemeroff, 2011)

c) Amino acids

Gamma-aminobutyric acid (GABA) is a primary inhibitory neurotransmitter in the central nervous system responsible for modulation of behavioral and physiological responses to stressors. GABA acts via GABAa receptors, which are also colocalized with benzodiazepine receptors that enhance GABA inhibitory signaling to postsynaptic targets. Unstable stress is associated with alterations in GABA/benzodiazepine receptor complexes, and may contribute to the development of PTSD symptoms (Chou, Herbst, Cloitre, & Tsoh, 2018). Nevertheless, benzodiazepine medications commenced post exposure to psychological trauma do not preclude the emergence of PTSD symptoms (Fernando & Berger, 2017) (Thomas & Stein, 2017). A recent study has suggested that traumatic exposure during periods of intoxication may lead to development of PTSD. Glutamate is the primary excitatory neurotransmitter in the brain, and incidents of stressors or glucocorticoid exposure often will facilitate the release of glutamate (Chandran et al., 2017) (Wu et al., 2016). The NMDA receptor system supports the processes of synaptic plasticity, learning, and memory, which may combine to solidify traumatic memories in the case of an individual with PTSD Herzog, Whitworth, & Scott, 2020). Excessive glutamate is thought to be excitotoxic, and could lead to loss of neurons and/or neuronal integrity of the hippocampus and prefrontal cortex in an individual with PTSD. High levels of glucocorticoids increase the expression and/or sensitivity of NMDA receptors leading to further "vulnerability" to excitotoxic insults during stress (Sherin & Nemeroff, 2011).

d) Brain circuitr

Based on brainimaging methods, particular changes in brain structure have been identified in patients with (Rauch et al., 2006) (Bartzokis et al., 2005). Brain regions that arc altered in patients with PTSD include the hippocampus and amygdala as well as cortical regions including the anterior cingulate, insula, and orbitofrontal region. These areas work together in order to mediate the adaptation to stress and fear. It is proposed that changes in these circuit have direct effect on development of PTSD (Rauch et al., 2006).

e) Hippocampus

One of the most well-known effects of PTSD is reduced hippocampal volume. The hippocampus is involved in the control of stress responses, declarative memory, and contextual aspects of fear conditioning, repetitive exposure in stress high levels of glucocorticoids in laboratory animals damages the hippocampus, leading to reduction in dendritic branching, loss of dendritic spines, and impairment of neurogenesis (Fuchs & Gould, 2000). Recent studies using proton magnetic resonance spectroscopy further exposed reduced levels of N-acctyl aspartate (NAA), a marker of neuronal integrity, in the hippocampus of adult patients with PTSD (Rauch et al., 2006). Interestingly, reduced hippocampal

volume has been observed in depressed women with a history of early life trauma (Vythilingam et al., 2002) but not in children with PTSD (De Bellis et al., 1999). The volume reduction in hippocampus may reflect the accumulated toxic effects of repeated exposure to increased glucocorticoid levels or increased glucocorticoid sensitivity. Recent evidence also suggests that decreased hippocampal volumes might be a pre-existing vulnerability factor for developing PTSD (Pitman et al., 2002). Indeed, hippocampal deficits may promote activation of and failure to terminate stress responses, and may also contribute to impaired extinction of conditioned fear as well as deficits in discriminating between safe and unsafe environmental contexts (Sherin & Nemeroff, 2011).

f) Amygdala

The amygdala is a limbic structure and a part of the emotional processing. It is mediating stress responses and emotional learning. On the other hand there is no significant evidence for its role in PTSD. Based on functional imaging studies there is hyper-responsiveness in PTSD during presentation of stressful scripts, cues, and/or trauma (Shin et al., 2006). PTSD patients also showed enhanced amygdala responses to general emotional stimuli (Shin et al., 2006). Furthermore an increased activation of the amygdala has been observed in PTSD patients during fear acquisition in a conditioning experiment (Bremner et al., 2005). Based on given information increased amygdala activation has been linked to genetic traits which moderate risk for PTSD (Hariri et al., 2002) (Kilpatrick et al., 2007).

g) Cortex

The medial prefrontal cortex (PFC) is divided into 3 different parts: anterior cingulate cortex (ACC), subcallosal cortex, and the medial frontal gyrus. By its connection with amygdala, the medial PFC has inhibitory control over stress responses and emotional reactivity (Shin et al., 2006). PTSD patients exhibit decreased volumes of the frontal cortex and this reduction has been linked to PTSD symptoms in several studies. Moreover, an abnormal structure of the ACC and reduction in NAA levels in the ACC (De Bellis et al., 2000), has been reported for PTSD patients. Another study suggests that volume loss in the ACC is a secondary to the PTSD development rather than a pre-existing risk factor (Kasai et al., 2008). Functional imaging studies have found decreased activation of the medial PFC in PTSD patients in response to stimuli, such as trauma scripts (Shin et al., 2004) (Britton et al., 2005), combat pictures and sounds (Bremner et al., 1999), trauma-unrelated negative narratives (Lanius et al., 2003), fearful faces (Shin et al., 2005), emotional stroop (Bremner et al., 2004), and others, though there are also discordant findings (Shin et al., 2006). In addition to these findings, SSRI treatment has been shown to restore medial prefrontal cortical activation patterns (Shin et al., 2006). Given the connectivity between the amygdala and medial PFC, interplays in activation patterns between these regions have been reported in PTSD, though the direction of the relationship is inconsistent across studies (Shin et al., 2006).

The origin of neurobiological abnormalities in PTSD

Several studies have investigated the neurobiological alterations associated with PTSD and whether they represent pre-existing vulnerability factors or consequences of trauma. One of the most studied biomarkers is cortisol. Research suggests that low cortisol levels during or shortly after trauma are associated with an increased risk of developing PTSD. Reduced cortisol levels may also represent a pre-existing vulnerability by weakening the inhibition of corticotropin-releasing hormone (CRH) and norepinephrine (NE) pathways, thereby enhancing the body's stress response.

Another key area of research concerns the reduced hippocampal volume frequently observed in individuals with PTSD. It remains unclear whether this reduction results from traumatic experiences or exists before trauma exposure. To investigate this question, Gilbertson and colleagues (Gilbertson et al., 2002) examined 40 pairs of identical twins, including Vietnam veterans exposed to combat and their non-deployed twins. As expected, veterans with PTSD had smaller hippocampal volumes. However, their non-exposed twins also exhibited similarly reduced hippocampal volumes, suggesting that a smaller hippocampus may be a pre-existing, multifactorial vulnerability factor that increases the risk of developing PTSD following trauma. Further research is needed to clarify the origins of other neurobiological features associated with PTSD (Sherin & Nemeroff, 2011).

Gender differences and risk for PTSD

Women are diagnosed with post-traumatic stress disorder (PTSD) at substantially higher rates than men, although the mechanisms underlying this disparity remain incompletely understood. The increased prevalence of PTSD among women cannot be explained solely by differences in the type or frequency of trauma exposure. Consequently, numerous studies have investigated sex-related differences in the neurobiological response to traumatic stress (Becker et al., 2007).

Experimental findings from rodent models suggest that females generally exhibit more prolonged activation of the hypothalamic-pituitary-adrenal (HPA) axis following stress exposure than males (Rhodes & Rubin, 1999). These differences in neuroendocrine stress responses have been associated with the influence of estrogen on corticotropin-releasing hormone (CRH) neurons (Vamvakopoulos & Chrousos, 1993). In addition, several sex steroids interact with neurotransmitter systems that regulate stress responses, further contributing to sex-specific patterns of stress regulation (Bethea et al., 2002). However, research has also demonstrated that differences in HPA axis activity persist even in the absence of acute gonadal steroid effects, suggesting that additional biological mechanisms contribute to these observed sex differences (Roca et al., 2005).

Genetic variation, developmental programming, and the long-term organizational effects of gonadal steroid hormones have all been proposed as important contributors to sex differences in stress responsiveness (Kudielka & Kirschbaum, 2005; Roca et al., 2005; McEwen, 2001). Supporting this

perspective, a recent study involving female veterans found that pregnancy was associated with an increased risk of developing PTSD (Mattocks, Skanderson, & Goulet, 2010). Furthermore, sex steroids have been shown to influence structural plasticity in several brain regions involved in emotional regulation and stress processing, including the hippocampus and amygdala (McEwen, 2001). Functional neuroimaging studies have likewise identified sex differences in neural responses to fear-inducing stimuli, providing additional evidence that men and women process traumatic experiences differently at the neural level (Schienle et al., 2005).

Collectively, these findings suggest that sex differences in PTSD arise from a complex interaction of genetic, hormonal, developmental, and neurobiological factors rather than differences in trauma exposure alone. As research continues to advance, a more comprehensive understanding of these mechanisms may help explain why traumatic experiences lead to different levels of PTSD vulnerability between men and women and may ultimately inform the development of more effective, sex-specific therapeutic interventions (Sherin & Nemeroff, 2011).

Having reviewed the general characteristics of trauma, its classifications, associated psychological responses, and underlying neurobiological mechanisms, the following sections will focus specifically on gender-based trauma. Particular attention will be given to its unique psychological and neurological consequences for women and the factors that contribute to their increased vulnerability.

DEFINING GENDER-BASED TRAUMA

What is Gender-Based Trauma?

Gender-based violence contains wide ranges of harmful actions and behaviors directed at individuals based on their gender identity. These wide ranges of actions include physical violence, sexual assault, psychological abuse, economic exploitation, and other forms of harm. These actions can cause spesific physical, emotional, and social damage (Heise, Ellsberg, & Gottmoeller, 2002).

Forms of Gender-Based Violence Leading to Trauma

Gender-based violence (GBV) encompasses a wide range of harmful acts directed at women and girls on the basis of their gender. These forms of violence include intimate partner violence, sexual assault, dowry-related killings, marital rape, gender-biased neglect and malnutrition of female children, forced prostitution, female genital mutilation, and the sexual abuse of girls (Heise, Ellsberg, & Gottmoeller, 2002). As a widespread global public health and human rights issue, GBV affects millions of individuals regardless of age, ethnicity, or socioeconomic status. According to the World Health Organization (WHO), approximately one in three women worldwide has experienced physical or sexual violence during her lifetime (Acharya, Ed., 2011, p. 51).

GBV occurs across all societies and throughout every stage of a woman's life. In some contexts, gender-based discrimination begins even before birth, as illustrated by the practice of sex-selective abortion in parts of northern India. While certain forms of GBV are found across cultures, others are more prevalent in specific regions or evolve over time. For example, the historical practice of foot binding in China has disappeared, whereas property grabbing has emerged as a more recent form of violence in parts of Southern and East Africa, largely associated with the HIV/AIDS epidemic. Women's experiences of GBV may also differ according to socioeconomic status, occupation, ethnicity, religion, sexual orientation, and other intersecting social identities.

The hidden nature of GBV makes it particularly difficult to study. Many survivors are reluctant to disclose their experiences because of fear, stigma, or the normalization of violence within their communities. Consequently, despite the widespread prevalence of GBV, relatively few studies have comprehensively measured its various forms across different societies. One of the largest investigations conducted by the World Health Organization examined physical and sexual violence perpetrated by male intimate partners. The study included more than 24,000 women across 15 sites in 10 countries and found that between 15% and 71% of participants reported experiencing physical or sexual violence from an intimate partner. However, intimate partner violence represents only one dimension of the broader spectrum of GBV experienced by women worldwide.

Armed conflicts and humanitarian crises further intensify women's vulnerability to gender-based violence. Although both men and women experience violence during conflict, women are disproportionately affected by gender-specific forms of abuse. In conflicts in Bosnia, Liberia, the Democratic Republic of the Congo, northern Uganda, Burundi, Darfur, and other regions, sexual violence has been systematically employed as a weapon of war. Women and girls living in refugee and internally displaced persons (IDP) camps face particularly high risks of GBV. For example, one study reported that six out of ten women residing in northern Uganda's largest displacement camp had experienced sexual or physical assault. Similarly, research conducted by Oxfam partner organizations documented high rates of domestic violence in post-tsunami displacement camps in Sri Lanka, demonstrating that the risk of GBV remains substantial not only during armed conflict but also in the aftermath of natural disasters and other humanitarian emergencies (Terry & Hoare, 2007).

The Consequences of Gender-Based Violence

The consequences of GBV can be devastating for survivors, communities, and societies. These consequences may have long-lasting effects on individuals' mental and emotional well-being, as well as social and economic stability (Acharya, 2011).

Table 2: ***The Consequences of Gender-Based Violence***

Physical Health	GBV often results in physical injuries, some of which can be life- threatening. Survivors may require medical attention, rehabilitation, or long-term care.
Mental and Emotional Health	The psychological impact of GBV can be severe, leading to conditions such as depression, anxiety, post-traumatic stress disorder (PTSD), and even suicidal thoughts or attempts
Social Isolation	Survivors may withdraw from their social networks due to shame, fear, or stigmatization, further isolating themselves from potential sources of support.
Economic Consequences	GBV can disrupt a survivor's ability to work and maintain economic independence, exacerbating their vulnerability.
Intergenerational Impact	Children exposed to GBV in their households may suffer from trauma and adverse childhood experiences, leading to long-term emotional and developmental issues

(Acharya, 2011)

2.4. Neurological and Psychological Implications

Gender-based violence (GBV) is associated with profound physiological consequences that extend beyond immediate psychological distress. Exposure to GBV and trauma can dysregulate multiple biological systems, including the central nervous, endocrine, and immune systems, increasing survivors' susceptibility to a range of long-term health conditions. Existing research further suggests that these biological consequences contribute to health disparities experienced by marginalized survivors of GBV. To better understand these complex outcomes, scholars have emphasized the importance of adopting a bio-socio-ecological framework that considers the interaction between biological vulnerability, social environments, and individual experiences. They also highlight the need for stronger evidence to inform interventions targeting the biological effects of chronic toxic stress among marginalized GBV survivors (Sabri & Granger, 2018).

Substantial evidence also demonstrates that mental health disorders differ significantly by sex. Women are approximately twice as likely as men to develop anxiety disorders and experience a higher lifetime prevalence of major depressive disorder (Kessler, 2003; Zender & Olshansky, 2009). These disparities are believed to result from a combination of biological and psychosocial mechanisms. Biological contributors

include genetically influenced susceptibility, hormonal fluctuations associated with reproductive processes, and increased sensitivity of neural systems involved in mood regulation to these hormonal changes. At the same time, psychosocial factors—including gender-based role stress, sex-specific social challenges, and unequal societal status—have been identified as important contributors to women's elevated risk of depression.

Research examining the neurobiological basis of these differences has linked anxiety disorders to dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis (Fernández-Guasti et al., 2012). Gonadal steroid hormones have been shown to influence HPA axis activity, potentially contributing to the greater prevalence of affective disorders among women. Furthermore, prenatal exposure to chronic stress or elevated glucocorticoid levels may alter neuroendocrine development, resulting in long-term changes in stress responsiveness and adult behavioral outcomes. These findings suggest that biological sex should be considered when developing therapeutic strategies for affective disorders.

Although Kessler (2003) notes that gender differences in depression generally emerge after puberty, evidence indicates that later reproductive events—including pregnancy, menopause, oral contraceptive use, and hormone replacement therapy—do not independently account for the increased prevalence of major depressive disorder among women. Instead, the current body of research suggests that women's heightened vulnerability to depression is more accurately explained by the interaction between biological predispositions and environmental influences, rather than by hormonal changes alone (Mirowsky & Ross, 1995; Nolen-Hoeksema et al., 2008).

GAPS IN CURRENT NEUROSCIENCE RESEARCH ON FEMALE TRAUMA

Underrepresentation of Women in Neuroscience Studies

Gender inequities still exist in neuroscience, particularly with regard to female participation in research and the inclusion of women as research subjects. While women make up a significant percentage of the population affected by neurological disorders, studies have indicated women's involvement in clinical trials and neuroscience-related research is still disproportionate to the affected population. Under-representation distorts our understanding of neurological conditions and inhibits researchers from generalizing findings to the other half of the population.

The problem has stemmed from gender biases in study design, to the recruitment of participants, to the lack of analysis that considers female participation in the research. In addition to these considerations, socio-cultural factors that can inhibit women from fully participating in research such as caregiving support, the perception of women in academia, and the expectations accompanying these roles create challenge for women participating in research studies. Addressing these factors is vital for furthering neuroscientific knowledge and ultimately improve health care equity.

The current movement to improve inclusivity in neuroscience research has reflected in developing gender-sensitive methodological approaches, recruiting diverse populations of participants, and emphasizing inclusive practice as a research culture. Addressing and attempting to resolve inequity in participation by women researchers, and overwhelmingly consuming knowledge regarding women's health, will ultimately move towards better representation of women, that are equally represented as men, in studies undertaken in neuroscience.

Lack of Intersectional, Youth-Based Data

Current research in neuroscience frequently fails to address ascribed and constructed, intersectional identities in youth populations, such as that of their gender, race, socioeconomic status, and neurodiversity. The absence of robust intersectional, youth data greatly limits our understanding of neurological development and trauma in contexts around lived experiences. Adolescence is a critical time in brain development, but most contemporary studies examine adults and ignore age as a variable that shapes cognitive, emotional, and neural states. Furthermore, though youth are sometimes included in studies, there is rarely disaggregated data that takes into account the struggles faced by marginalized groups. For example, young girls of colour, LGBTQ+ youth, and impoverished youth, might experience trauma, or neurologically diverse conditions differently based on systemic inequality—these youths' voices are often statistically invisible in these large datasets. Therefore, for neuroscientific research to inform truly inclusive and efficacious interventions for youth, we need to borrow from considerations of intersectionality and utilize ethically defensible, youth-centred research methods, including collecting data with youth analysis in mind, enhancing voices that are often underrepresented, and working with communities to help us contextualize the complexities of youth realities within a range of possibilities. Without efforts like this, we run the risk of returning to a one-size-fits-all approach that will be of little benefit for those most vulnerable to this style of research.

How This Study Aims to Address the Gap

This study hopes to add to the area of neuroscience by creating an original, experience-based dataset focused on university-aged women. There are many studies that exist using standardized or primarily male data. This study prioritizes the voices and subjective experiences of women, particularly regarding gender-based pressure and trauma. Using qualitative and quantitative survey methods, the study will measure the psychological and neurological effects of gender-based oppression self-reported by the participants. This adds a human element to the data, as the study embraces the narratives of the participants to measure a person's experiences, which challenges traditional models of neuroscience research, especially when it comes to women's lived experiences. Also, interpreting self-reported symptoms and cognitive-emotional patterns through a neuroscience lens provides a unique contribution to the area - a gender-focused perspective for neuroscience that highlights psychological trauma and can lead to neural correlates. An essential and necessary item was covered by this study, which responds to the current lack of gender accounting data and paves the way for more inclusive, intersectional methods in future studies.

METHODOLOGY

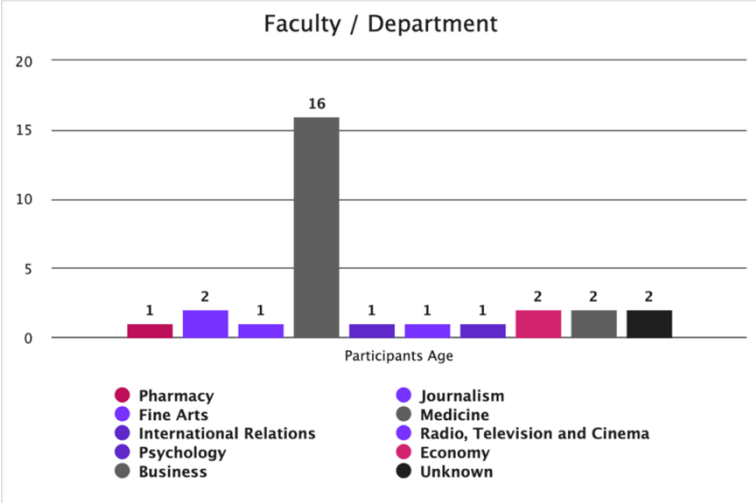
Study Design

This study employed a cross-sectional, exploratory survey design to examine female university students' self-reported experiences of gender-based violence or trauma, perceived psychological and functional effects, coping strategies, support use, and awareness of gender-based trauma within their social and university environments. The study collected self-report data at a single point in time and did not include neurological, physiological, endocrine, or clinical diagnostic measures.

Participants

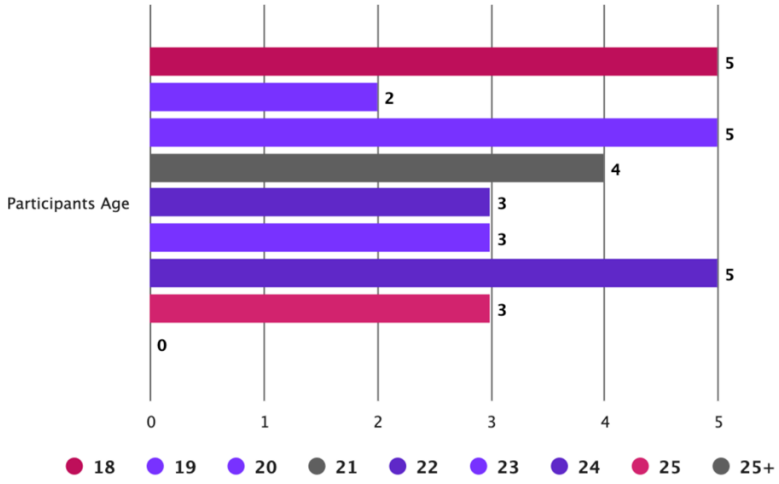
The study included 30 female undergraduate students enrolled at universities in Turkey. Participants ranged in age from 18 to 25 years, with a mean age of 21.4 years (*SD* = 2.36). Participants aged 18, 20, and 24 each represented 16.7% of the sample. Participants aged 21 represented 13.3%, those aged 22, 23, and 25 each represented 10.0%, and those aged 19 represented 6.7%.

Table 3. Participants Age



Participants provided their faculty or department through a free-text response. Responses referring to medicine using different spellings or institutional descriptions were consolidated into a single medicine category. Fifteen participants (50.0%) were enrolled in medicine. Three (10.0%) were enrolled in business administration, and two (6.7%) were enrolled in journalism. Economics, international trade and finance, psychology, pharmacy, fine arts, and communication or radio–television–cinema were each represented by one participant (3.3%). Three responses (10.0%) could not be classified because they did not identify a recognizable faculty or department.

Table 4. Participants Faculty / Department



The sample was recruited through convenience sampling and should not be considered representative of all female university students in Turkey or of the student population of any individual institution.

Materials

Data were collected using a 19-item online questionnaire created and administered through Google Forms. The questionnaire collected information concerning participants' age and academic faculty or department, personal exposure to gender-based violence or trauma, types of trauma experienced, symptom frequency, perceived effects on daily functioning, use of psychological support, comfort with disclosure, gender-role pressures, coping mechanisms, preferred forms of support, awareness of trauma within participants' social circles, vicarious emotional impact, and perceptions of discussion and institutional support within university environments.

The questionnaire included single-response multiple-choice items, multiple-response checkbox items, Likert-type items, and open-ended questions. Data were exported from Google Forms to Microsoft Excel for organization, cleaning, and analysis.

The questionnaire used researcher-developed items informed by psychological and trauma-related concepts in the existing literature. No complete standardized or clinically validated instrument—such as a diagnostic measure of depression, anxiety, post-traumatic stress, or self-esteem—was administered. Consequently, the responses were not used to calculate clinical diagnoses or validated anxiety, depression, PTSD, or self-esteem scores.

Survey Coding

The symptom-frequency item presented examples of trauma-related experiences, including anxiety or tension, sadness or hopelessness, sleep difficulty, emotional numbness, difficulty concentrating, disturbing memories, feelings of worthlessness or guilt, social avoidance, and heightened startle or tension. Participants provided one overall frequency response for this combined item. Responses were coded as 1 = never, 2 = sometimes, 3 = often, and 4 = always. Higher values indicated greater self-reported frequency of the listed symptoms.

Perceived effects on daily functioning were coded as 1 = not at all, 2 = a little, 3 = moderately, and 4 = severely. Higher values indicated greater perceived functional impairment.

Comfort discussing personal experiences was coded as 1 = very comfortable, 2 = somewhat comfortable, 3 = moderately comfortable, 4 = somewhat uncomfortable, and 5 = very uncomfortable. For the exploratory Fisher's exact test, responses of 1–3 were grouped as comfortable or moderately comfortable, while responses of 4–5 were grouped as uncomfortable.

For multiple-response questions concerning trauma types, coping mechanisms, and preferred forms of support, each selected option was counted separately. Therefore, category frequencies and percentages could exceed the number of respondents and 100%, respectively. Percentages for these items were calculated using the number of participants who validly answered the relevant question, rather than the total number of selections.

Procedure

The questionnaire was designed to be accessible across electronic devices and to allow participants to complete it privately and at their own pace. The survey link was distributed through university student networks, including WhatsApp groups, student mailing lists, faculty-related social-media groups, and peer networks. Participation was voluntary, and no direct identifying information, such as participants' names, email addresses, telephone numbers, or student identification numbers, was requested.

The survey first asked all participants whether they had personally experienced gender-based violence or trauma. Thirteen participants reported personal exposure, while 17 reported no personal exposure. Participants who selected "No" were instructed to proceed to Question 13, which concerned awareness of gender-based trauma within their social circles.

The follow-up section was not technically restricted through enforced survey branching. As a result, two participants who reported no personal trauma exposure nevertheless answered Questions 5–12. In addition, one of the 13 trauma-exposed participants did not complete these questions. Trauma-specific descriptive analyses of Questions 5–12 were therefore restricted to the 12 trauma-exposed participants who provided valid responses. The two responses from non-exposed participants were excluded from these trauma-specific analyses.

Data Completeness and Item Non-Response

Participants were permitted to skip questions they did not wish to answer. Consequently, the number of valid responses varied across survey items. All 30 participants completed the demographic and trauma-exposure items. All 13 trauma-exposed participants completed the trauma-type question. Questions concerning symptoms, functional impact, psychological support, disclosure comfort, societal pressure, coping mechanisms, and preferred support received 14 responses in the raw dataset; however, trauma-specific analyses of these items used the 12 valid responses from trauma-exposed participants.

The open-ended question concerning gender-role pressures received seven responses. The social-circle awareness item received 28 responses, the subsequent disclosure and vicarious-impact items received 24 responses in the raw dataset, the campus-awareness item received 29 responses, the community-comfort and institutional-discussion items each received 28 responses, and the final open-ended vicarious-impact question received nine responses.

Analyses concerning disclosure and emotional impact among known survivors were restricted to the 18 participants who explicitly reported knowing someone close to them who had experienced gender-based trauma. The valid response count and denominator are reported for each result and table. Missing responses were treated as missing and were not replaced or statistically imputed.

Statistical Analysis

Descriptive statistics were used to summarize participant characteristics and survey responses. Frequencies and percentages were reported for categorical variables. Means, standard deviations, and ranges were calculated for age. Percentages for single-response items were calculated using the number of valid responses to the relevant item. For multiple-response items, percentages represented the proportion of valid respondents selecting each option.

Three exploratory association analyses were conducted using the available data. First, Spearman's rank-order correlation was used to examine the association between symptom-frequency scores and perceived functional-impairment scores among trauma-exposed participants who completed both items (n = 12). Second, Spearman's rank-order correlation was used to examine whether the number of trauma types reported was associated with symptom-frequency scores among the same trauma-exposed

participants (n = 12). The number of trauma types was calculated by counting the distinct trauma categories selected by each participant.

Third, Fisher's exact test was used to examine the association between discomfort with disclosure and reported receipt or attempted use of psychological support among trauma-exposed participants with complete responses (n = 12). Fisher's exact test was selected because of the small sample and low expected frequencies within the contingency-table cells. Responses indicating current support, previous support with a desire to continue, or an unsuccessful attempt to obtain support were grouped as having received or sought support. "No" responses were categorized as no reported support.

All tests were two-sided, with statistical significance evaluated at $p < .05$. Because the analyses were exploratory and based on a small convenience sample, emphasis was placed on effect estimates, exact sample sizes, and cautious interpretation rather than statistical significance alone. No direct comparison of functional impairment between trauma-exposed and non-exposed participants was conducted because only two non-exposed participants completed the follow-up items, producing an insufficient and severely imbalanced comparison group.

Ethical Considerations

The study addressed a sensitive topic and incorporated procedures intended to protect participants' autonomy, privacy, and emotional well-being. Before beginning the survey, participants were informed of the study's purpose, the voluntary nature of participation, and their ability to discontinue participation or leave individual questions unanswered without penalty. No direct identifying information was requested, and survey responses were stored in a restricted-access digital file available only to the researcher.

Because participants could encounter emotionally difficult questions, they were not required to answer any individual item. The study did not attempt to diagnose participants or provide clinical evaluation or treatment. Findings were analyzed and reported in aggregate, with open-ended responses paraphrased or presented without identifying information.

Formal institutional ethics approval was not obtained for this study. This absence should be stated transparently and recognized as a limitation, particularly because the study involved human participants and sensitive experiences. The procedural safeguards described above were used to reduce potential risks but should not be presented as a substitute for formal institutional ethical review.

RESULTS

All 30 participants answered the question concerning personal exposure to gender-based violence or trauma, with no item non-response. Of the 30 female university students, 13 participants (43.3%) reported having experienced at least one form of gender-based violence or trauma, while 17 participants (56.7%)

reported no personal experience of gender-based violence or trauma. Thus, although a majority of participants did not report personal exposure, a substantial proportion of the sample—more than two in five participants—reported having experienced gender-based violence or trauma.

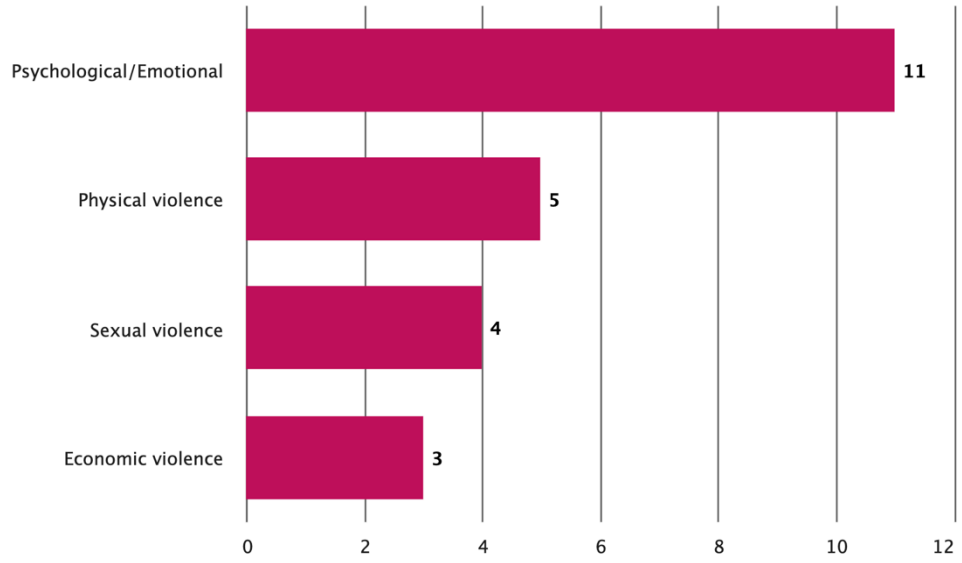
Table 5. Frequency of Self-Reported Gender-Based Trauma Exposure (N = 30)

Response	***Number of Participants***	***Percentage (%)***
Yes	13	43.3
No	17	56.7
Total	30	100

The differences in trauma experience underlines the need to determine potential associations between trauma history and neural or cognitive outcomes in females.

The 13 participants who reported personal exposure to gender-based violence or trauma were asked to identify the type or types they had experienced. All 13 participants answered this multiple-response item and could select more than one trauma type. Psychological or emotional violence, including verbal abuse and controlling behavior, was the most frequently reported form, selected by 11 participants (84.6%). Physical violence was reported by five participants (38.5%), sexual violence by four participants (30.8%), and economic violence by three participants (23.1%). The findings indicate that psychological or emotional violence was particularly prevalent within the trauma-exposed subsample and that some participants had experienced multiple forms of gender-based trauma. (All 13 trauma-exposed participants answered this item. Participants could select more than one type of trauma; therefore, frequencies exceed 13 and percentages do not sum to 100%. Percentages were calculated using the 13 valid respondents as the denominator.)

Table 6. Types of Gender-Based Trauma Reported by Trauma-Exposed Participants (n = 13)



Trauma-exposed participants were asked to evaluate the extent to which their reported symptoms affected their daily functioning using a four-point Likert-type scale coded as 1 = not at all, 2 = a little, 3 = moderately, and 4 = severely. Of the 13 trauma-exposed participants, 12 answered this item and one did not provide a response. One participant (8.3%) reported no impact on daily functioning, six (50.0%) reported a little impact, three (25.0%) reported moderate impact, and two (16.7%) reported severe impact.

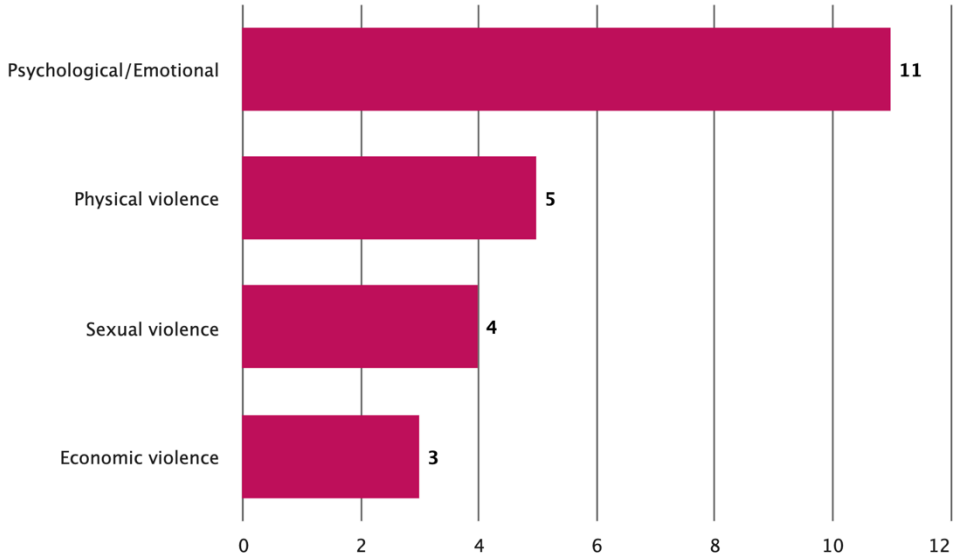
Overall, five of the 12 respondents (41.7%) reported that their symptoms affected their daily functioning either moderately or severely. These findings describe participants' perceived functional impairment but should not be interpreted as evidence of objectively measured cognitive, emotional, or social dysfunction.

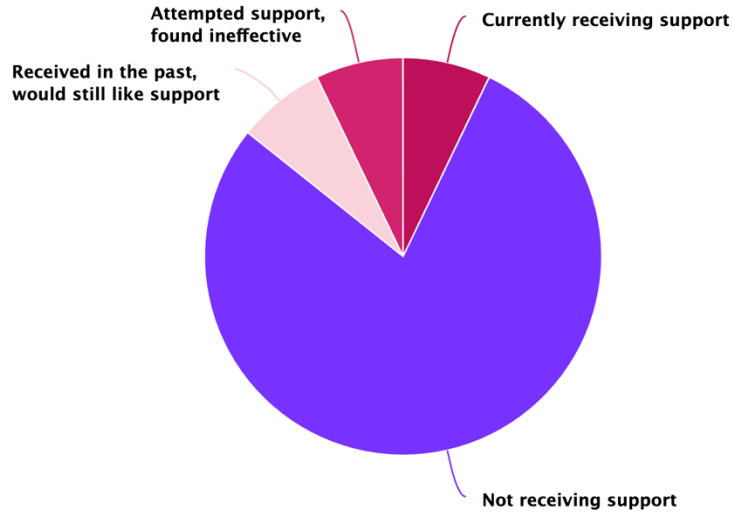
Two participants who had not reported personal trauma exposure also completed this follow-up item. Their responses were excluded from the trauma-exposed subgroup analysis because the item specifically concerned the personal effects of trauma-related symptoms.

Use of Psychological Support

Participants in the trauma-exposed subgroup were also asked whether they were currently receiving or seeking psychological support, such as counseling or therapy. Of the 13 trauma-exposed participants, 12 answered this item and one did not provide a response. Nine respondents (75.0%) reported that they were not currently receiving psychological support. One participant (8.3%) reported currently receiving support, one (8.3%) stated that she had received support in the past and would like to continue, and one (8.3%) reported having attempted to obtain support without receiving sufficient benefit.

Table 7. Psychological Support Among Trauma-Exposed Participants (Valid Respondents: n = 12)





Twelve of the 13 trauma-exposed participants answered this item; one response was missing. Two participants who did not report personal trauma exposure also completed the follow-up item but were excluded from this trauma-specific analysis. Percentages were calculated using the 12 valid responses from trauma-exposed participants.

Most respondents in the trauma-exposed subgroup were not receiving psychological support at the time of the survey. Although this pattern may point to potential differences between psychological needs and service utilization, the survey did not directly examine participants' reasons for not obtaining support. Therefore, barriers to care should be considered a possible explanation rather than a conclusion established by the present data.

Trauma-exposed participants were asked how comfortable they felt discussing their experiences of gender-based violence or trauma. Of the 13 trauma-exposed participants, 12 answered this item and one did not provide a response. None of the respondents reported feeling very comfortable. One participant (8.3%) felt somewhat comfortable, four (33.3%) felt moderately comfortable, two (16.7%) felt somewhat uncomfortable, and five (41.7%) felt very uncomfortable discussing their experiences.

Collectively, seven of the 12 respondents (58.3%) reported feeling either somewhat or very uncomfortable, indicating that discomfort with disclosure was common within the trauma-exposed subgroup. The survey did not directly assess why participants felt uncomfortable; therefore, possible influences such as emotional distress, fear of judgment, and social or cultural pressures should be treated as potential explanations rather than conclusions established by these findings. Twelve of the 13 trauma-exposed participants answered this item; one response was missing. Two participants who did not report personal trauma exposure also completed the item but were excluded from this trauma-specific analysis. Percentages were calculated using the 12 valid responses from trauma-exposed participants.

Participants were asked whether they had encountered societal expectations or pressures related to gender roles that they believed had affected their mental health. Fourteen participants answered this item, while 16 did not provide a response. Of the 14 respondents, eight (57.1%) reported having encountered such pressures, five (35.7%) were unsure, and one (7.1%) reported that she had not experienced them. Fourteen of the 30 participants answered this item; 16 responses were missing. The question was applicable to societal gender-role pressures generally and was therefore analyzed using all valid responses, including responses from both trauma-exposed and non-exposed participants.

Seven participants provided additional information through the related open-ended question. Their responses illustrated several ways in which gender-role expectations were perceived to affect their emotional well-being and everyday behavior. Reported experiences included being questioned about how professional ambitions would be balanced with future childcare responsibilities, feeling expected to make career decisions around marriage or motherhood, and carrying a disproportionate share of emotional or organizational responsibilities within relationships.

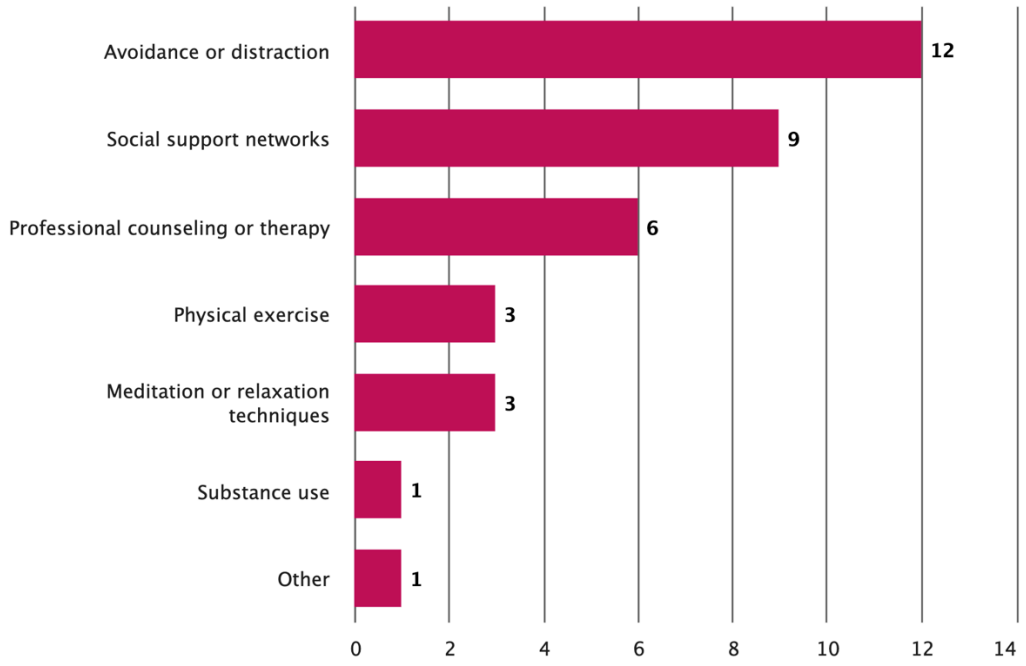
Other responses described heightened vigilance in public or potentially unsafe spaces, hesitation when expressing opinions or forming social relationships, and difficulty communicating emotions, preferences, or personal needs. Participants also described feelings of inadequacy, diminished self-worth, and reduced confidence. One respondent indicated that these experiences had also contributed to the development of an activist identity. Although these qualitative responses cannot establish causation or represent the

experiences of the full sample, they provide context for how some participants perceived gender-related social expectations as affecting their confidence, sense of safety, personal expression, and psychological well-being.

The survey examined the coping mechanisms participants used to manage the psychological effects they associated with gender-based trauma. Twelve of the 13 trauma-exposed participants answered this multiple-response item, while one did not provide a response. Participants were permitted to select more than one coping mechanism.

Avoidance or distraction was the most frequently reported strategy, selected by 11 participants (91.7%). Talking to friends or family was reported by seven participants (58.3%), while five (41.7%) selected professional counseling or therapy. Physical exercise and meditation or relaxation techniques were each reported by three participants (25.0%). One participant (8.3%) reported substance use, and one (8.3%) identified eating as an additional coping mechanism. These findings demonstrate that participants frequently used multiple strategies rather than relying on a single coping mechanism.

Table 8. Coping Mechanisms Used to Manage the Psychological Effects of Gender-Based Trauma (Valid Respondents: n = 12)



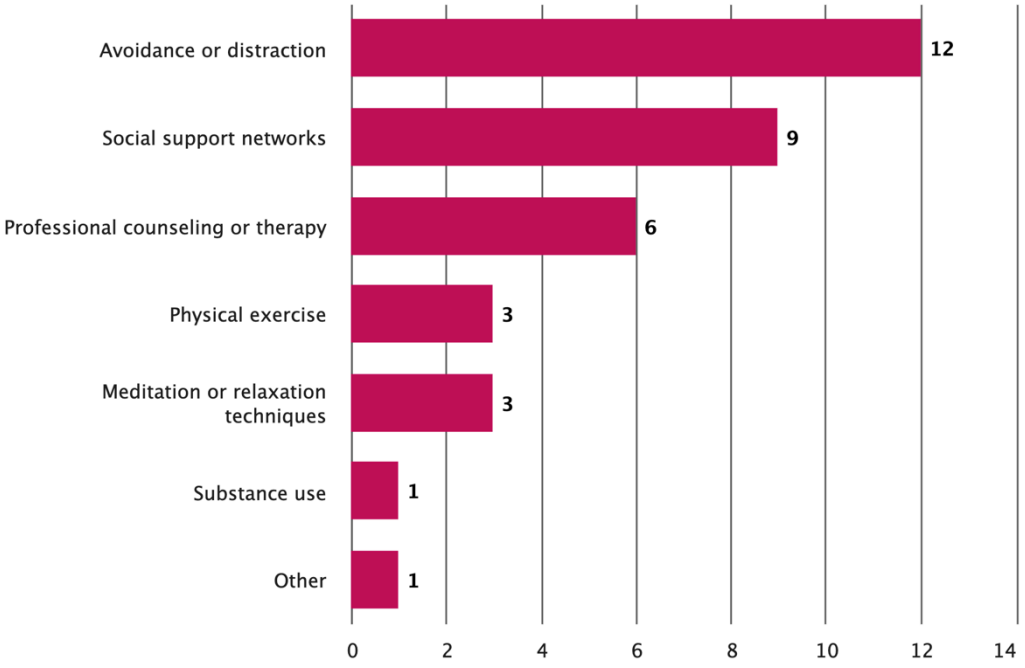
Twelve of the 13 trauma-exposed participants answered this item; one response was missing. Participants could select more than one coping mechanism. Consequently, category frequencies exceed 12 and percentages do not sum to 100%. Percentages were calculated using the 12 valid trauma-exposed respondents as the denominator. Two non-exposed participants completed this item but were excluded from the trauma-specific analysis.

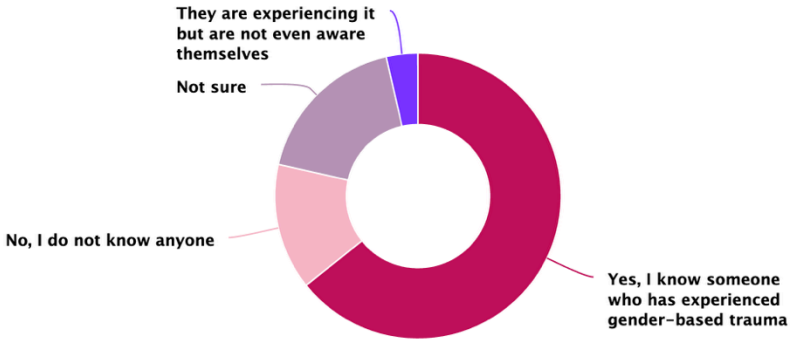
The same 12 trauma-exposed participants also identified the forms of support they believed would be most helpful for coping with gender-based trauma. This was also a multiple-response item. Increased access to psychological services was the most frequently selected option, reported by nine participants (75.0%). Peer-support groups were selected by five participants (41.7%). Gender-based violence education programs and safe spaces on campus were each selected by four participants (33.3%), while legal assistance was selected by three participants (25.0%). One participant (8.3%) identified family solidarity as another potentially helpful form of support, while one participant (8.3%) stated that she did not believe any form of support would be helpful. Twelve of the 13 trauma-exposed participants answered this multiple-response item; one response was missing. Frequencies and percentages exceed 12 and 100%, respectively, because participants could select more than one option. Two non-exposed participants completed the item but were excluded from this analysis.

The proportion selecting increased access to psychological services as beneficial (75.0%) was higher than the proportion reporting counseling or therapy as a coping mechanism (41.7%), representing a descriptive difference of 33.3 percentage points. This pattern may indicate a discrepancy between the perceived value and actual use of professional psychological services. However, because the survey did not directly assess service availability, affordability, stigma, or other access barriers, it cannot establish why this difference occurred.

Participants were asked whether they knew someone close to them, such as a friend, roommate, or relative, who had experienced gender-based violence or trauma. Twenty-eight of the 30 participants answered this item, while two did not provide a response. Eighteen respondents (64.3%) reported knowing someone who had experienced gender-based trauma, four (14.3%) reported that they did not, and five (17.9%) were unsure. One participant (3.6%) stated that people within her social circle appeared to be experiencing gender-based trauma but might not recognize their experiences as such.

Table 9. Awareness of Gender-Based Trauma Within Participants' Social Circles (Valid Respondents: n = 28)





Twenty-eight of the 30 participants answered this item; two responses were missing. Percentages were calculated using the 28 valid responses as the denominator.

The finding that nearly two-thirds of respondents knew someone who had experienced gender-based trauma indicates that participants encountered the issue not only through personal exposure but also within their social relationships. However, this result reflects participants' awareness and perceptions and does not independently verify the experiences of the individuals in their social circles.

The 18 participants who reported knowing someone affected by gender-based trauma were asked how openly that person had shared the experience. Seven respondents (38.9%) indicated that the person disclosed a limited amount and generally spoke only when asked. Six respondents (33.3%) reported that the person spoke openly and in detail, while two (11.1%) stated that the person generally avoided the subject. One participant (5.6%) reported that nothing had been disclosed, although she suspected that an experience had occurred.

Two participants (11.1%) provided more context through alternative responses. One explained that disclosure differed depending on the closeness of the relationship and that some individuals spoke openly while others avoided the subject. Another reported that an individual disclosed the experience only after entering an environment perceived as safe. These responses illustrate that the extent of disclosure varied across relationships and circumstances and that perceived trust and safety may have influenced participants' accounts of disclosure.

This analysis was restricted to the 18 participants who reported knowing someone close to them who had experienced gender-based trauma.

The same 18 participants were asked how strongly knowing about another person's experience had affected them emotionally. Ten participants (55.6%) reported being significantly affected, five (27.8%) reported being extremely affected, and three (16.7%) reported being moderately affected. None selected "a little" or "not at all."

This analysis was restricted to the 18 participants who reported knowing someone close to them who had experienced gender-based trauma.

These findings suggest that awareness of trauma within participants' social circles was accompanied by substantial self-reported emotional responses. Nevertheless, the survey measured participants' perceptions at a single point in time and cannot establish that vicarious exposure caused these emotional responses.

Nine participants answered the open-ended question concerning how learning about other people's experiences had affected their mental health or awareness. Their responses reflected varied emotional and attitudinal reactions. Several described sadness, anger, diminished trust in other people, and frustration with perceived failures of the justice system. One respondent described feeling pressure to help everyone and respond perfectly, while another indicated that hearing other people's accounts helped her evaluate similar experiences more objectively and reduced feelings of self-blame.

Other responses emphasized increased awareness of gender-based violence and a greater understanding of how to respond if a similar situation occurred. One participant described becoming more engaged in research, academic activities, and civil-society work related to gender and ethical issues. Some responses also referred to solidarity, hope for future change, and a desire to support other women.

These qualitative accounts demonstrate that participants perceived vicarious exposure in different ways, including emotional distress, distrust, increased awareness, solidarity, and motivation for civic engagement. Because only nine participants answered this open-ended item, these themes should be understood as illustrative accounts rather than representative findings for the full sample.

Participants were asked whether they had witnessed or been aware of gender-based violence on their campus or within their university environment. Twenty-nine participants answered this item and one did not provide a response. Nine respondents (31.0%) reported having witnessed or been aware of such an incident, 13 (44.8%) reported that they had not, and seven (24.1%) were unsure.

Participants were also asked how comfortable people around them appeared to be when discussing gender-based violence or trauma. Twenty-eight participants answered this item. One participant (3.6%) described people around her as very comfortable, three (10.7%) as somewhat comfortable, and seven (25.0%) as neither comfortable nor uncomfortable. Ten participants (35.7%) described people around them as somewhat uncomfortable, while seven (25.0%) described them as very uncomfortable. Overall, 17 of the 28 respondents (60.7%) perceived some degree of discomfort within their social environments.

Twenty-eight participants answered the question concerning whether universities or student societies encouraged open discussion of gender-based trauma. One participant (3.6%) believed that such discussion was strongly encouraged, while nine (32.1%) believed it was encouraged to a limited extent. Thirteen participants (46.4%) responded “not really,” four (14.3%) responded “not at all,” and one (3.6%) was unsure.

Twenty-eight of the 30 participants answered this item; two responses were missing.

Most respondents—17 of 28, or 60.7%—perceived that universities or student societies did not meaningfully encourage open discussion of gender-based trauma. This result describes participants’ perceptions of their institutional environments. The survey did not directly test whether perceived institutional encouragement affected disclosure, reporting, help-seeking, or prevention; therefore, such effects should not be presented as conclusions established by the data.

Exploratory Association Analyses

Three exploratory association analyses were conducted using responses from trauma-exposed participants with complete data.

A strong positive association was observed between self-reported symptom frequency and perceived functional impairment (Spearman’s $\rho = .835$, $n = 12$, $p < .001$). Participants reporting more frequent trauma-related symptoms also tended to report greater effects on their daily functioning. This finding reflects an association between two self-reported ordinal measures and should not be interpreted as evidence of causation or objectively measured impairment.

The number of trauma types reported was not significantly associated with symptom-frequency scores (Spearman's $\rho = .178$, $n = 12$, $p = .580$). Thus, the present data did not provide sufficient evidence that participants reporting multiple trauma types experienced more frequent symptoms than those reporting fewer trauma types. Given the small sample, this non-significant finding should not be interpreted as evidence that no such relationship exists.

Fisher's exact test was used to examine the association between discomfort with disclosure and having received, sought, or attempted to obtain psychological support. No statistically significant association was identified (odds ratio = 0.25, $n = 12$, $p = .523$). Although participants who felt uncomfortable discussing their experiences appeared less likely to report support engagement, the small cell frequencies and limited sample prevent a reliable conclusion regarding this relationship.

A direct comparison of functional impairment between trauma-exposed and non-exposed participants was not conducted. Only two non-exposed participants completed the trauma-related follow-up items, making the comparison severely imbalanced and statistically unreliable. All inferential findings should therefore be regarded as preliminary and exploratory.

DISCUSSION

This exploratory study examined self-reported experiences of gender-based trauma, perceived psychological and functional effects, coping strategies, support use, and community awareness among 30 female university students in Turkey. Thirteen participants (43.3%) reported personal exposure to at least one form of gender-based violence or trauma. Within this trauma-exposed subgroup, psychological or emotional violence was the most frequently reported type, identified by 11 of 13 participants (84.6%). Because participants could report multiple forms of trauma, these findings also indicate that some had experienced overlapping forms of violence.

Among the 12 trauma-exposed participants who completed the symptom and functional-impact items, five (41.7%) reported that their symptoms affected their daily functioning moderately or severely. Symptom frequency was strongly and positively associated with perceived functional impairment. Participants who reported more frequent symptoms also tended to report greater disruption to their daily lives (Spearman's $\rho = .835$, $n = 12$, $p < .001$). This association is consistent with the possibility that more frequent psychological difficulties are accompanied by greater perceived disruption of daily functioning. However, both variables were measured through single self-report items at the same point in time. The result therefore does not establish causation, clinical impairment, or an objectively measured cognitive effect.

The number of trauma types reported was not significantly associated with symptom frequency (Spearman's $\rho = .178$, $n = 12$, $p = .580$). This null finding does not demonstrate that the number or type of traumatic experiences is unrelated to psychological outcomes. The trauma-exposed analytical sample was

small, and some trauma categories contained very few participants, substantially limiting the ability to detect an association. The finding should therefore be interpreted as insufficient evidence of an association within this sample rather than evidence that no relationship exists.

Avoidance or distraction was the most frequently reported coping mechanism, selected by 11 of the 12 trauma-exposed respondents (91.7%). Talking to friends or family was selected by seven participants (58.3%), and professional counseling or therapy by five (41.7%). These findings suggest that coping was multidimensional: participants frequently combined interpersonal, professional, behavioral, and avoidance-based strategies. Avoidance may provide short-term relief from distress, but the present survey did not assess its duration, effectiveness, or long-term consequences. Similarly, the use of social support cannot be assumed to have produced better psychological outcomes because the study did not measure changes following the use of particular coping strategies.

Nine of the 12 trauma-exposed respondents (75.0%) identified increased access to psychological services as a potentially beneficial form of support. In contrast, only one participant reported currently receiving psychological support, while two others described either previous support or an unsuccessful attempt to obtain it. This descriptive difference may indicate a discrepancy between the perceived usefulness and actual use of professional services. However, the survey did not directly measure affordability, availability, stigma, quality of services, or other access barriers. It therefore cannot determine why service use was limited.

Discomfort with disclosure was also common: seven of the 12 trauma-exposed respondents (58.3%) reported feeling somewhat or very uncomfortable discussing their experiences. Nevertheless, the association between disclosure discomfort and having received, sought, or attempted to obtain psychological support was not statistically significant (Fisher's exact test, odds ratio = 0.25, $n = 12$, $p = .523$). Although the estimated direction suggested lower support engagement among participants who felt uncomfortable disclosing their experiences, the sample and cell counts were too small to support a reliable conclusion. Future research with a larger sample would be necessary to determine whether disclosure comfort is meaningfully related to help-seeking behavior.

Gender-related societal expectations constituted another important theme. Of the 14 participants who answered this item, eight (57.1%) believed that gender-role pressures had affected their mental health, while five (35.7%) were unsure. Open-ended responses described expectations surrounding professional choices, marriage, motherhood, family responsibilities, public safety, emotional expression, and social relationships. Participants also described diminished confidence, feelings of inadequacy, and heightened vigilance. These qualitative accounts illustrate how participants understood the relationship between gender expectations and psychological well-being, but they do not establish that such pressures caused the reported experiences.

Gender-based trauma was also visible within participants' interpersonal environments. Eighteen of the 28 respondents to the social-circle item (64.3%) reported knowing someone close to them who had

experienced gender-based trauma. Among these 18 participants, all reported at least a moderate emotional impact: ten (55.6%) were significantly affected, five (27.8%) were extremely affected, and three (16.7%) were moderately affected. Open-ended accounts described sadness, anger, reduced trust, increased awareness, solidarity, and motivation for civic engagement. These responses suggest that participants perceived gender-based trauma as having consequences beyond directly exposed individuals. Nevertheless, the study assessed perceived emotional reactions and did not use a validated measure of secondary or vicarious trauma. The findings should therefore not be interpreted as clinical evidence of vicarious traumatization.

Participants' perceptions of their university environments also indicated limited institutional discussion. Seventeen of the 28 respondents (60.7%) believed that universities or student societies did not meaningfully encourage open discussion of gender-based trauma. Similarly, 17 of 28 respondents (60.7%) perceived people around them as somewhat or very uncomfortable discussing the subject. These findings identify a perceived lack of openness within participants' social and institutional environments. However, the study did not measure actual university policies, reporting procedures, service availability, or institutional responses. It also did not test whether perceived institutional openness was associated with reporting, psychological support, or prevention outcomes.

Overall, the findings provide a preliminary description of how a small sample of female university students understood gender-based trauma, its perceived psychological effects, coping, support, and community awareness. The study does not provide neurological evidence and cannot determine the effects of trauma on the brain. Instead, it identifies self-reported psychological and psychosocial patterns that may inform larger and more methodologically rigorous investigations.

LIMITATIONS

Several limitations should be considered when interpreting the findings. First, the study included only 30 participants recruited through convenience sampling. The sample was not randomly selected and cannot be considered representative of all female university students in Turkey. The trauma-exposed analytical subgroup was smaller still: 13 participants reported personal exposure, and only 12 completed most trauma-related follow-up items. This limited statistical power and prevented reliable comparisons between trauma-exposed and non-exposed participants.

Second, the survey branching was not technically enforced. Participants who reported no personal trauma exposure were instructed to skip to Question 13, but two nevertheless answered the trauma-related follow-up questions. Conversely, one trauma-exposed participant did not complete those items. Trauma-specific analyses therefore excluded the two non-exposed responses and used the 12 complete trauma-exposed responses. Item non-response also produced varying denominators across later survey questions.

Third, all findings were based on self-report. Responses may have been influenced by recall error, differences in the interpretation of gender-based trauma, reluctance to disclose sensitive experiences, stigma, and social desirability. The anonymous format may have facilitated disclosure, but it was not possible to verify the reported experiences independently.

Fourth, the questionnaire did not administer complete validated measures of anxiety, depression, PTSD, self-esteem, functional impairment, or vicarious trauma. The symptom item combined several conceptually distinct experiences—including anxiety, sadness, sleep difficulty, numbness, concentration problems, disturbing memories, guilt, avoidance, and heightened startle—into a single overall frequency response. Consequently, the study could not calculate separate symptom-domain scores or establish clinical diagnoses. This structure also reduced measurement precision and may have obscured differences between particular psychological outcomes.

Fifth, the cross-sectional design prevents conclusions about directionality or causation. Although symptom frequency was associated with perceived functional impairment, the study cannot determine whether more frequent symptoms produced greater impairment, whether functional difficulties influenced symptom reporting, or whether both reflected other unmeasured factors. Similarly, the study cannot establish causal relationships among trauma exposure, coping, support use, disclosure, social pressure, and perceived institutional openness.

Sixth, the open-ended responses provided useful contextual information but were completed by relatively few participants. The gender-pressure question received seven qualitative responses, while the vicarious-impact question received nine. These accounts illustrate individual perspectives but cannot be treated as representative of the full sample.

Finally, formal institutional ethics approval was not obtained. Although participation was voluntary, identifying information was not requested, and participants could skip questions or withdraw, these safeguards do not replace independent institutional ethical review. This limitation is particularly important given the sensitivity of the research topic.

FUTURE RESEARCH

Future studies should recruit larger and more diverse samples across multiple universities and use enforced survey branching so that participants receive only questions relevant to their reported experiences. Validated instruments should be used to measure specific psychological outcomes, such as anxiety, depression, post-traumatic stress symptoms, self-esteem, functional impairment, and vicarious trauma. Longitudinal research would help clarify how symptoms, coping strategies, disclosure, and support engagement change over time.

Future research could also examine barriers to psychological services directly, including availability, cost, stigma, confidentiality concerns, and confidence in institutional reporting systems. If neurological claims

are to be investigated, future studies would need direct physiological or neurological measures—such as appropriately designed salivary-cortisol, neurocognitive, or EEG assessments—together with adequate ethical approval and specialist supervision. Such measures should be treated as a separate future research direction and not as outcomes demonstrated by the present self-report survey.

CONCLUSION

This exploratory study provides a preliminary account of gender-based trauma, perceived psychological effects, coping strategies, support use, and community awareness among female university students in Turkey. Thirteen of the 30 participants (43.3%) reported personal exposure to at least one form of gender-based violence or trauma. Among these participants, psychological or emotional violence was the most frequently reported type. In addition, 18 of the 28 respondents to the social-circle item (64.3%) reported knowing someone close to them who had experienced gender-based trauma, indicating that participants encountered the issue through both personal and interpersonal experiences.

Among the 12 trauma-exposed participants who completed the relevant follow-up items, symptom frequency was strongly associated with perceived functional impairment. However, neither the number of trauma types nor discomfort with disclosure demonstrated a statistically significant association with the outcomes examined. These null findings should be interpreted cautiously because the small sample provided limited statistical power. More broadly, all measures were based on self-report and cannot establish causation, clinical diagnoses, or neurological effects.

Avoidance or distraction was reported by 11 of the 12 trauma-exposed respondents (91.7%), while seven (58.3%) reported talking to friends or family and five (41.7%) identified counseling or therapy as a coping mechanism. Nine participants (75.0%) believed that increased access to psychological services would be helpful, yet only one reported currently receiving psychological support. This descriptive discrepancy suggests that the perceived value of professional support may not consistently correspond with its use, although the study did not directly investigate the reasons for this pattern.

The findings also point to perceived limitations in social and institutional openness. Most respondents to the relevant items described discomfort discussing gender-based trauma within their social environments and believed that universities or student societies did not meaningfully encourage open discussion. Universities may therefore consider strengthening confidential counseling pathways, clearly communicating available support and reporting procedures, and developing appropriately supervised peer-support and awareness initiatives. Such programs should be designed with student involvement, professional oversight, survivor safety, and formal evaluation rather than assuming that any single intervention will meet all participants' needs.

Because this study used a small convenience sample, optional survey items, researcher-developed measures, and a cross-sectional design, its findings should be understood as preliminary and descriptive.

Future studies should use larger and more diverse samples, enforced survey branching, validated psychological instruments, longitudinal follow-up, and formal institutional ethical review. If future research seeks to investigate neurological or physiological effects, it must incorporate direct and appropriately supervised measures, such as neurocognitive assessments, salivary cortisol, or EEG. The present study does not demonstrate neural effects; instead, it identifies self-reported psychological and psychosocial experiences that warrant more rigorous investigation and more responsive university support systems.

REFERENCES

1. Meneses Meneses, A. Y., Fernandez-Gonzalo, S., & Jodar Vicente, M. (2023). *Clinical neuropsychological profile and quality of life in women who have suffered gender-based violence*. *Women's Health Reports, 4*(1), 448. https://doi.org/10.1089/whr.2023.0019
2. Giller, Esther. "What Is Psychological Trauma?" *Konseling Indonesia.com*, 5 July 2011, https://konselingindonesia.com/read/296/what-is-psychological-trauma.html
3. McFarlane, A. C. (2010). *The long-term costs of traumatic stress: Intertwined physical and psychological consequences*. *World Psychiatry, 9*(1), 3–10. https://doi.org/10.1002/j.2051-5545.2010.tb00254.x
4. Bryant RA, Creamer M, O'Donnell ML. A multisite study of the capacity of acute stress disorder diagnosis to predict posttraumatic stress disorder. J Clin Psychiatry. 2008;69:923–929. doi: 10.4088/jcp.v69n0606.
5. McFarlane AC, Atchison M, Yehuda R. The acute stress response following motor vehicle accidents and its relation to PTSD. Ann N Y Acad Sci. 1997;821:437–441. doi: 10.1111/j.1749-6632.1997.tb48299.x
6. Southwick SM, Morgan CA, Darnell A. Trauma-related symptoms in veterans of Operation Desert Storm: a 2-year follow-up. Am J Psychiatry. 1995;152:1150–1155. doi: 10.1176/ajp.152.8.1150.
7. Grieger TA, Cozza SJ, Ursano RJ. Posttraumatic stress disorder and depression in battle-injured soldiers. Am J Psychiatry. 2006;163:1777–1783. doi: 10.1176/ajp.2006.163.10.1777.
8. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4th ed. Washington: American Psychiatric Association; 1994.
9. Buckley TC, Blanchard EB, Hickling EJ. A prospective examination of delayed onset PTSD secondary to motor vehicle accidents. J Abnorm Psychol. 1996;105:617–625. doi: 10.1037//0021-843x.105.4.617
10. Andrews B, Brewin CR, Philpott R. Delayed-onset posttraumatic stress disorder: a systematic review of the evidence. Am J Psychiatry. 2007;164:1319–1326. doi: 10.1176/appi.ajp.2007.06091491.
11. Sherin, J. E., & Nemeroff, C. B. (2011). Post-traumatic stress disorder: The neurobiological impact of psychological trauma. *Dialogues in Clinical Neuroscience, 13*(2), 263–278. https://doi.org/10.31887/DCNS.2011.13.2/jsherin

12. Farbstein, D., Hollander, N., Peled, O., Apter, A., Fennig, S., Haberman, Y., Gitman, H., Yaniv, I., Shkalim, V., Pick, C. G., & Benaroya-Milshtein, N. (2021). Social isolation in mice: Behavior, immunity, and tumor growth. *Stress, 24*(2), 229–238. https://doi.org/10.1080/10253890.2020.1856607
13. Herzog, J. R., Whitworth, J. D., & Scott, D. L. (2020). Trauma-informed care with military populations. *Journal of Human Behavior in the Social Environment, 30*(3), 265–278. https://doi.org/10.1080/10911359.2019.1679274
14. Gresko, M., Marazziti, D., Piccinni, A., Mucci, F., & Loganovsky, K. M. (2018). Features of coping strategies in overcoming extreme critical situations: A study on Chernobyl nuclear power plant liquidators and antiterrorist participants. *Journal of Loss and Trauma, 23*(4), 287–302.
15. Yap, R. (2018). Implicitly regulating the stress of oppression: Re-establishing safety in intercultural practice. *Smith College Studies in Social Work, 88*(1), 4–19.
16. Chou, C.-Y., Herbst, E., Cloitre, M., & Tsoh, J. Y. (2018). An emotion regulation-focused theoretical framework for co-occurring nicotine addiction and PTSD: Comments on existing treatments and future directions. *Cogent Medicine, 5*(1).
17. Fernando, G. A., & Berger, D. E. (2017). The role of religion in youth exposed to disasters in Sri Lanka. *Journal of Prevention & Intervention in the Community, 45*(4), 238–249.
18. Thomas, E., & Stein, D. J. (2017). Novel pharmacological treatment strategies for posttraumatic stress disorder. *Expert Review of Clinical Pharmacology, 10*(2), 167–177.
19. Chandran, R., Sharma, A., Bhomia, M., Balakathiresan, N. S., Knollmann-Ritschel, B. E., & Maheshwari, R. K. (2017). Differential expression of microRNAs in the brains of mice subjected to increasing grade of mild traumatic brain injury. *Brain Injury, 31*(1), 106–119.
20. Wu, F., Meng, W.-Y., Hao, C.-Z., Zhu, L.-L., Chen, D.-Q., Lin, L.-Y., & Wen, H. (2016). Analysis of posttraumatic stress disorder in children with road traffic injury in Wenzhou, China. *Traffic Injury Prevention, 17*(2), 159–163.
21. Wang, L. X., Million, M., Rivier, J., et al. (in press). CRF receptor antagonist astressin-B reverses and prevents alopecia in CRF over-expressing mice. *PLoS One*.
22. Arborelius, L., Owens, M. J., Plotsky, P. M., & Nemeroff, C. B. (1999). The role of corticotropin-releasing factor in depression and anxiety disorders. *Journal of Endocrinology, 160*(1), 1–12.
23. Rasmusson, A. M., Hauger, R. L., Morgan, C. A., Bremner, J. D., Charney, D. S., & Southwick, S. M. (2000). Low baseline and yohimbine-stimulated plasma neuropeptide Y (NPY) levels in combat-related PTSD. *Biological Psychiatry, 47*(6), 526–539.
24. Yehuda, R. (2006). Advances in understanding neuroendocrine alterations in PTSD and their therapeutic implications. *Annals of the New York Academy of Sciences, 1071*(1), 137–166.
25. Rauch, S. L., Shin, L. M., & Phelps, E. A. (2006). Neurocircuitry models of posttraumatic stress disorder and extinction: Human neuroimaging research—past, present, and future. *Biological Psychiatry, 60*(4), 376–382.
26. Bartzokis, G., Po, H. L., Turner, J., & Saunders, C. S. (2005). Adjunctive risperidone in the treatment of chronic combat-related posttraumatic stress disorder. *Biological Psychiatry, 57*(5), 474–479.

27. Fuchs, E., & Gould, E. (2000). Mini-review: in vivo neurogenesis in the adult brain: regulation and functional implications. *European Journal of Neuroscience, 12*(11), 1141–1149.
28. Vythilingam, M., Heim, C., Newport, J., et al. (2002). Childhood trauma associated with smaller hippocampal volume in women with major depression. *American Journal of Psychiatry, 159*(7), 1247–1254.
29. De Bellis, M. D., Keshavan, M. S., Clark, D. B., et al. (1999). AE Bennett Research Award. Developmental traumatology. Part II: Brain development. *Biological Psychiatry, 45*(12), 1271–1284.
30. Pitman, R. K., Sanders, K. M., Zusman, R. M., et al. (2002). Pilot study of secondary prevention of posttraumatic stress disorder with propranolol. *Biological Psychiatry, 51*(2), 189–192.
31. Shin, L. M., Rauch, S. L., & Pitman, R. K. (2006). Amygdala, medial prefrontal cortex, and hippocampal function in PTSD. *Annals of the New York Academy of Sciences, 1071*, 67–79.
32. De Bellis, M. D., Clark, D. B., Beers, S. R., Soloff, P. H., Boring, A. M., Hall, J., Kersh, A., & Keshavan, M. S. (2000). Hippocampal volume in adolescent-onset alcohol use disorders. *The American Journal of Psychiatry, 157*(5), 737-744. https://doi.org/10.1176/appi.ajp.157.5.737
33. Kasai, K., Yamasue, H., Gilbertson, M. W., Shenton, M. E., Rauch, S. L., & Pitman, R. K. (2008). Evidence for acquired pregenual anterior cingulate gray matter loss from a twin study of combat‐related posttraumatic stress disorder. *Biological Psychiatry, 63*(6), 550–556. https://doi.org/10.1016/j.biopsych.2007.06.022
34. Shin, L. M., Orr, S. P., Carson, M. A., Rauch, S. L., Macklin, M. L., Lasko, N. B., Marzol Peters, P., Metzger, L. J., Dougherty, D. D., Cannistraro, P. A., Alpert, N. M., Fischman, A. J., & Pitman, R. K. (2004). Regional cerebral blood flow in the amygdala and medial prefrontal cortex during traumatic imagery in male and female Vietnam veterans with PTSD. *Archives of General Psychiatry, 61*(2), 168–176. https://doi.org/10.1001/archpsyc.61.2.168
35. Britton, J. C., Phan, K. L., Taylor, S. F., Fig, L. M., & Liberzon, I. (2005). Corticolimbic blood flow in posttraumatic stress disorder during script-driven imagery. *Biological Psychiatry, 57*(8), 832-840. https://doi.org/10.1016/j.biopsych.2004.12.025
36. Bremner, J. D., Staib, L., Kaloupek, D., Southwick, S. M., Soufer, R., & Charney, D. S. (1999). Neural correlates of exposure to traumatic pictures and sound in Vietnam combat veterans with and without posttraumatic stress disorder: A positron emission tomography study. *Biological Psychiatry, 45*(7), 806-816. https://doi.org/10.1016/S0006-3223(98)00297-2
37. Lanius, R. A., Williamson, P. C., Hopper, J., Densmore, M., Boksman, K., Gupta, M. A., Neufeld, R. W. J., Gati, J. S., & Menon, R. S. (2003). Recall of emotional states in posttraumatic stress disorder: An fMRI investigation. *Biological Psychiatry, 53*(3), 204–210. https://doi.org/10.1016/s0006-3223(02)01466-x
38. Shin, L. M., Wright, C. I., Cannistraro, P. A., Wedig, M. M., McMullin, K., Martis, B., Macklin, M. L., Lasko, N. B., Cavanagh, S. R., Krangel, T. S., Orr, S. P., Pitman, R. K., Whalen, P. J., & Rauch, S. L. (2005). A functional magnetic resonance imaging study of amygdala and medial prefrontal cortex responses to overtly presented fearful faces in posttraumatic stress disorder. *Archives of General Psychiatry, 62*(3), 273–281. https://doi.org/10.1001/archpsyc.62.3.273

39. Gilbertson, M. W., Shenton, M. E., Ciszewski, A., Kasai, K., Lasko, N. B., Orr, S. P., & Pitman, R. K. (2002). Smaller hippocampal volume predicts pathologic vulnerability to psychological trauma. *Nature Neuroscience, 5*(11), 1242–1247. https://doi.org/10.1038/nn958
40. Bryant, R. A., Kemp, A. H., Felmingham, K. L., et al. (2008). Enhanced amygdala and medial prefrontal activation during nonconscious processing of fear in posttraumatic stress disorder: an fMRI study. *Human Brain Mapping, 29*(5), 1752–1763.
41. Kilpatrick, D. G., Koenen, K. C., Ruggiero, K. J., et al. (2007). The serotonin transporter genotype and social support and moderation of posttraumatic stress disorder and depression in hurricane-exposed adults. *American Journal of Psychiatry, 164*(9), 1693–1699.
42. Becker, J. B., Monteggia, L. M., Perrot-Sinal, T. S., et al. (2007). Stress and disease: Is being female a predisposing factor? *Journal of Neuroscience, 27*(44), 11851–11855.
43. Rhodes, M. E., & Rubin, R. T. (1999). Functional sex differences ('sexual diergism') of central nervous system cholinergic systems, vasopressin, and hypothalamic–pituitary–adrenal axis activity in mammals: A selective review. *Brain Research Reviews, 30*(2), 135–152.
44. Kudielka, B. M., & Kirschbaum, C. (2005). Sex differences in HPA axis responses to stress: A review. *Biological Psychology, 69*(1), 113–132.
45. Vamvakopoulos, N. C., & Chrousos, G. P. (1993). Evidence of direct estrogenic regulation of human corticotropin-releasing hormone gene expression. *The Journal of Clinical Investigation, 92*(4), 1896–1902.
46. Bethea, C. L., Mirkes, S. J., Su, A., & Michelson, D. (2002). Effects of oral estrogen, raloxifene and arzoxifene on gene expression in serotonin neurons of macaques. *Psychoneuroendocrinology, 27*(4), 431–445.
47. Roca, C. A., Schmidt, P. J., Deuster, P. A., Danaceau, M. A., & Rubinow, D. R. (2005). Sex-related differences in stimulated hypothalamic-pituitary-adrenal axis during induced gonadal suppression. *The Journal of Clinical Endocrinology & Metabolism, 90*(1), 422–431.
48. McEwen, B. S. (2001). Invited review: Estrogens effects on the brain: Multiple sites and molecular mechanisms. *Journal of Applied Physiology, 91*(6), 2785–2801.
49. Mattocks, K. M., Skanderson, M., & Goulet, J. L. (2010). Pregnancy and mental health among women veterans returning from Iraq and Afghanistan. *Journal of Women's Health (Larchmont), 19*(12), 2159–2166.
50. Schienle, A., Schäfer, A., Stark, R., Walter, B., & Vaitl, D. (2005). Gender differences in the processing of disgust- and fear-inducing pictures: An fMRI study. *NeuroReport, 16*(3), 277–280.
51. Heise, L., Ellsberg, M., & Gottmoeller, M. (2002). A global overview of gender-based violence. *International Journal of Gynecology & Obstetrics*, *78*(Suppl. 1), S5–S14. https://www.sciencedirect.com/science/article/abs/pii/S0020729202000383
52. Acharya, B. C. (Ed.). (2011). *A handbook of women's human rights* (1st ed.). Wisdom Press. ISBN 978-9380199375 https://wisdompress.co.in/wp-content/uploads/2022/10/A-Handbook-of-Womens-Human-Rights.pdf#page=51
53. Terry, G., & Hoare, J. (Eds.). (2007). *Gender-based violence*. Oxfam GB

54. Sabri, B., & Granger, D. A. (2018). *Gender-based violence and trauma in marginalized populations of women: Role of biological embedding and toxic stress*. *Health Care for Women International, 39*(9), 1038–1055. https://doi.org/10.1080/07399332.2018.1491046
55. Kessler, R. C. (2003). Epidemiology of women and depression. *Journal of Affective Disorders, 74*(1), 5–13. https://doi.org/10.1016/S0165-0327(02)00426-3
56. Zender, R., & Olshansky, E. (2009). Women's mental health: Depression and anxiety. *Nursing Clinics of North America, 44*(3), 355–364. https://doi.org/10.1016/j.cnur.2009.06.002
57. Fernández-Guasti, A., Fiedler, J. L., Herrera, L., & Handa, R. J. (2012). Sex, stress, and mood disorders: At the intersection of adrenal and gonadal hormones. *Hormone and Metabolic Research, 44*(8), 607–618. https://doi.org/10.1055/s-0032-1312592
58. Mirowsky, J., & Ross, C. E. (1995). Sex differences in distress: Real or artifact? *American Sociological Review, 60*(3), 449–468. https://doi.org/10.2307/2096424
59. Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science, 3*(5), 400–424. https://doi.org/10.1111/j.1745-6924.2008.00088.x