Associations Between Yoga Participation and Mental Health, Body Connection, and Academic Well-being among Young Adult Collegiate Women

by

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ABSTRACT

Young adult collegiate women, particularly students with adverse childhood experiences (ACEs) and who have experienced intimate partner violence (IPV) victimization, report a myriad of adverse mental health and academic difficulties. Practicing yoga has demonstrated promising findings among adults as a healing modality in the aftermath of interpersonal violence victimization and traumatization. Less known are the associations between collegiate women's yoga participation and their mental health, body connection, and academic well-being examined through a yoga feminist-trauma conceptual framework.

Among young adult collegiate women, this study examined (1) associations amongst socio-demographics, mental health service use, IPV types, and yoga participation (2) the strength and direction of associations on measures of ACEs, mental health, body connection, and academic well-being, (3) whether yoga participation predicted students' mental health, body connection, and academic well-being after controlling for confounding variables, including ACEs and IPV victimization, and (4) whether socio-demographics, mental health service use, ACEs, and IPV types predicted yoga participation.

This study was observational, cross-sectional, and gathered self-report quantitative data. Eligible participants were current collegiate women enrolled at an urban, public university in the southwestern United States who were 18 to 24 years of age. The main sub-sample (n = 93) included students who were ever in an intimate relationship and practiced yoga within the past year. IRB approval was obtained.

Findings demonstrated that yoga participation was not a significant predictor of students' mental health, body connection, or academic well-being. Socio-demographics, mental health service use, ACEs, and IPV did not predict yoga participation. However, women with greater ACEs fared worse on measures of mental health (i.e., depression and post-traumatic stress disorder symptoms), and women with experiences of IPV harassment reported greater post-traumatic stress disorder symptoms. Further, employed women reported fewer depression symptoms and were less likely to experience emotional IPV. Lastly, students with greater body connection (more awareness) fared better academically.

This research supports prior literature on the adverse mental health outcomes among young adult collegiate women with histories of interpersonal violence. Further examination is warranted into employment and body connection, particularly related to yoga, as protective factors of students' health, safety, and academic well-being.

DEDICATION

In honor of my beloved family here and in spirit, and with a special mention to my father,

Andrew Lee Kappas (1948-2018), this one is for you.

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GLOSSARY OF TERMS

The following terms apply to this study and do not necessarily extend to the greater body of literature.

Adverse Childhood Experiences (ACEs): ACEs referred to victimization and potential traumatization during an individual's first 18 years of life (Felitti et al., 1998).

Collegiate Student: Denoted an individual enrolled in post-secondary education.

Intimate Partner: Referred to a current or former/ex dating relationship (e.g., girlfriend, boyfriend, partner), and/or sexual partner, and/or spouse, including polyamorous or non-monogamous relationships.

Intimate Partner Violence (IPV) Victimization: IPV victimization was conceptualized as, "...physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner)" within the past six months (Breiding et al., 2015, p. 11). Although not included within this study, IPV also comprises, but is not limited to, reproductive coercion (Swan et al., 2021), economic abuse (Voth Schrag, 2019), and technology-facilitated violence (Marganski et al., 2022; Reed et al., 2021).

Women: This study conceptualized "woman/women" as whether an individual answered "yes" to the question, "are you a woman?". The term "female" was not utilized, as the term denotes anatomical or biological sex, or sex assigned at birth, and is often conflated with gender identity and/or gender expression (Killermann, 2017).

Yoga Participation: Operationalized as physical (āsana), rhythmic control of breath (prānāyama), and/or meditation (Dhyāna) (Patañjali, 1990) for at least 30 minutes or more per week in the past six months.

CHAPTER 1

INTRODUCTION

Statement of the Problem

Research indicated that college women with histories of adverse childhood experiences (ACEs) (Dolbier et al., 2021; Watt et al., 2021) and/or intimate partner violence (IPV) victimization (Brewer et al., 2018; Witte et al., 2015) were more at risk for experiencing adverse mental health outcomes and academic difficulties. Given that childhood and adulthood interpersonal violence victimization have been theorized to impact a person psychologically and physiologically, researchers and clinicians have proposed therapeutic modalities that more holistically address the entire human organism — mind, body, and spirit (Cramer et al., 2018; Emerson & Hopper, 2011; Herman, 1992/2015; van der Kolk, 1994).

One therapeutic tool within trauma treatment that has received more attention in the West as a healing modality, due to its mind-body-spirit essence, is the practice of yoga (Khalsa et al., 2016). Yoga has demonstrated preliminary benefits for psychological and physical functioning among adult women with interpersonal violence experiences, such as childhood adversities and IPV (Kappas Mazzio et al., 2021). Specific to non-collegiate and collegiate young adults, yoga has shown preliminary positive implications for mental health and trauma symptoms, including post-traumatic stress disorder (PTSD), depression, anxiety, and academics (Cochrane et al., 2019; Nemati, 2013). However, scant literature has examined the association between yoga participation and adverse mental health, body connection, and academic well-being among young adult collegiate

women with histories of ACEs or IPV, particularly among one of the highest risk age groups (18-24 years) of collegiate women (Smith et al., 2018).[1]

Purpose of the Study and Research Questions

The main objective of this research study was to examine associations between participation in yoga (versus non-participation) among young adult collegiate women with histories of ACEs and IPV and their self-reported outcomes on mental health symptoms (i.e., PTSD, depression, anxiety), body connection, and academic well-being. Secondly, this study aimed to better understand factors (i.e., socio-demographics, mental health service use, ACEs, IPV types) associated with yoga participation among this population of students.

Given the scant empirical literature, an observational, cross-sectional study was chosen as an appropriate research design to measure the phenomena of interest and associations with the specified outcomes. The study sample was "young adult" collegiate women. "Young adult" was operationally defined as individuals 18 to 24 years of age because, among women with lifetime reported IPV victimization, nearly one-in-two women (45%) experience *first-time* IPV victimization between 18-24 years of age (Smith et al., 2018). Additionally, Halpern and colleagues (2009) operationalized "young adulthood" as 18-23 years of age, while Fletcher (2010) operationalized the term as 18-26 years of age. As such, the age range of 18-24 years was deemed appropriate for this study. Further, the term "women" was operationally defined as anyone who answered "yes" to the study's eligibility question, "are you a woman?" The term "collegiate" was

[1]See Neumark-Sztainer and colleagues (2020) for related research on associations between ACEs, stress, and yoga practice among young adult collegiate students.

operationally defined as anyone who attended Arizona State University as a part-time or full-time student. The four research questions were addressed:

1. What were the associations between dichotomous measures of race and ethnicity, sexual orientation, employment, mental health service use, IPV types (physical, harassment, emotional), and yoga participation?
2. What was the strength and direction of the associations between continuous measures of ACEs, mental health symptoms (i.e., PTSD, depression, anxiety), body connection, and academic well-being?
3. After controlling for confounding variables (i.e., socio-demographics and mental health service use; ACEs; IPV types physical, harassment, and emotional), did yoga participation predict differences in observed outcomes on the dependent variables (a) mental health symptoms (i.e., PTSD, depression, anxiety), (b) body connection, and (c) academic well-being?
4. Did (a) socio-demographics (race and ethnicity, sexual orientation, employment status) and mental health service use, (b) ACEs, and (c) IPV types (physical, harassment, emotional) predict participation in yoga?

Significance of Study

This study contributes to the body of scholarly literature by examining young adult collegiate women's yoga participation and their self-reported mental health, body connection, academic well-being, and their histories of ACEs and IPV. Further, this study examined students' characteristics and experiences related to their participation in yoga. The above are novel research questions examined among an at-risk group of post-secondary students and enhance a limited, growing body of scholarship.

CHAPTER 2

LITERATURE REVIEW

This review of the literature addresses women students' mental health and academic well-being within post-secondary education, then their experiences of interpersonal violence, specifically ACEs and IPV. Prevalence and types of ACEs and IPV are addressed within their respective sections, along with their trauma-related effects (e.g., mental health and academic well-being) and students who are most at risk for experiencing those types of interpersonal violence and adverse health. Then, yoga is discussed as a tool in response to violence and residual trauma, including the prevalence of yoga use and conceptualization broadly, as well as yoga prevalence and health implications among adults, youth, and college students with childhood adversities and IPV experiences. Lastly, aspects of body connection and overall gaps in the literature are examined.

Post-secondary Education

Mental Health

Large-scale, national research showed that a substantial portion of college students reported experiencing a multitude of mental health ailments, most notably anxiety (e.g., Generalized Anxiety Disorder; 27%), depression (e.g., Major Depressive Disorder, MDD; 22%) and post-traumatic stress (6%) (American College Health Association [ACHA], 2022). Of particular concern was the trauma response, post-traumatic stress disorder (PTSD), in relation to students' well-being. Specifically, among college students, PTSD symptoms mediated the relationship between academic expectation stress and alcohol use as a method of coping (Woolman et al., 2015). Upon

further exploration, academic stress was indirectly related to alcohol use (as a means of coping) through avoidance (the PTSD symptom cluster) (Woolman et al., 2015). Moreover, higher cumulative scores of PTSD were positively associated with higher cumulative scores of anxiety, depression, and new occurrence of interpersonal traumatic exposure (e.g., assault) (Cusack et al., 2019).

Further, studies have demonstrated the negative impact of COVID-19 on post-secondary students' welfare, particularly depression, perceived stress (Frazier et al., 2021; Wang et al., 2020; Wilson et al., 2021), anxiety (Liu et al., 2020; Wang et al., 2020), and PTSD (Liu et al., 2020). For example, students reported moderate-to-severe scores of anxiety (38%), depression (48%) (Wang et al., 2020), and PTSD symptoms (32%) (Liu et al., 2020). Additionally, greater levels of COVID-19-specific worry was positively associated with worse mental health outcomes among students (Liu et al., 2020).

Academic Well-being

In the aftermath of the COVID-19 pandemic, academic-related stressors and poor mental health were reported among college students. Precisely, 52% of students nationally reported problems or challenges related to their academics; of those students, 88% reported that the problem or challenge caused moderate-to-high distress (ACHA, 2022). Issues related to discrimination, microaggressions, physical assault, sexual assault, anxiety, depression, and PTSD were reported by students as adversely impacting their academic performance (ACHA, 2022). Further, difficulty concentrating that was moderate or severe was reported by 70% of students, and most students expressed fear

and worry related to their academic performance (86%), as well as progress and future plans (90%) (Wang et al., 2020).

Individuals at Increased Risk for Adverse Mental Health Outcomes

Findings showed that, within the larger population of students in post-secondary education, specific subgroups of individuals were at a higher risk for adverse mental health outcomes based on gender (ACHA, 2022; Cusack, 2019; Wang et al., 2020; Wilson et al., 2021*)*, sexuality (ACHA, 2022), and race (ACHA, 2022). National research demonstrated that students who were cis-gender women and transgender/gender non-conforming individuals reported higher rates of ever being diagnosed with anxiety, depression, and PTSD than their cis-gender male peers (ACHA, 2022). Moreover, 36% of cis-gender women and 59% of transgender/gender non-conforming students, compared to 19% of cis-gender males, reported receiving psychological or mental health services within the past year (ACHA, 2022). Regarding sexual orientation, gay, lesbian, and bi-sexual collegiate men and women, compared to their heterosexual peers, reported higher mental health service use (e.g., counselor, social worker) (Baams et al., 2018). Further, bisexual students were particularly at risk for adverse mental health, as they were more likely to have received a mental health diagnosis and have reported suicidality than their heterosexual or gay/lesbian peers (Liu et al., 2019). The cross-section of gender and traumatization also places students at an increased risk for mental health concerns; among students who endorsed potentially traumatic experiences in childhood, women, compared to men, reported higher rates of probable PTSD (Cusack et al., 2019).

Further, the COVID-19 pandemic had a disproportionate impact on students' mental health based on students' demographics, specifically gender and race. Compared

to men, women students fared worse on measures of before pandemic and after pandemic stress, depressive (Frazier et al., 2021; Wilson et al., 2021), and anxiety symptoms (Frazier et al., 2021). Factors associated with mental health symptomology during COVID-19 illustrated that compared to white students, Asian American students fared better on measures of anxiety, depression, and PTSD and Hispanic/Latino students fared better on measures of anxiety (Liu et al., 2020). These findings are supported by research prior to the COVID-19 pandemic in that Hispanic, Black, Asian, and Multiracial college students, compared to white college students, were less likely to report mental health diagnoses (i.e., depression, anxiety); findings regarding suicidality (i.e., self-injury, ideation, attempts) were mixed (Liu et al., 2019).

Adverse Childhood Experiences

Adverse childhood experiences, or ACEs, refer to victimization and potential traumatization during an individual's first 18 years of life (Felitti et al., 1998). The ACE measure categorizes types of childhood adversities into seven categories that define childhood adverse exposures — three assess childhood abuse (psychological, physical, contact sexual) and four assess childhood household dysfunction (substance abuse, mental illness, violent treatment of parent or stepparent, criminal behavior). ACEs have shown to be highly prevalent, and childhood victimization and trauma, particularly an exposure-response effect and polyvictimization[2], have been associated with multiple adverse biopsychosocial outcomes (Felitti et al., 1998; Hamby et al., 2021; Hughes et al., 2017).

Prevalence of Adverse Childhood Experiences and Types of Childhood Victimization

[2] Experiencing multiple forms of abuse (e.g., physical and sexual or sexual and psychological).

Empirical research has illustrated that an estimated 43% to 70% of college students and young adults reported experiencing up to three ACEs, while 9% to 29% reported four or more ACEs (Forster et al., 2021; Grigsby et al., 2020; Husky et al., 2022; Khrapatina, 2016; Watt et al., 2021). Types of childhood victimization among students in higher education vary. The prevalence of abuse types reported among students include — 15% to 31% physical abuse (Forster et al., 2021; Husky et al., 2022; Khrapatina, 2016), 35% verbal abuse (Forster et al., 2021), 26% emotional abuse (Husky et al., 2022), 15% psychological abuse (Khrapatina, 2016), and 3% sexual abuse (Husky et al., 2022; Khrapatina, 2016).

Trauma-related Effects Related to Adverse Childhood Experiences

Mental Health. Among this population, a growing body of literature has demonstrated that ACEs and childhood maltreatment were positively associated with adverse mental health outcomes in early adulthood; including depressive symptoms and Major Depressive Disorder (MDD) (Dolbier et al., 2021; Fitzgerald & Kawar, 2022; Gribsby et al., 2020; Husky et al., 2022; Karatekin, 2018; Merians et al., 2019; Windle et al., 2018), anxiety symptoms and Generalized Anxiety Disorder (GAD) (Dolbier et al., 2021; Fitzgerald & Kawar, 2022; Husky et al., 2022; Karatekin, 2018; Merians et al., 2019), post-traumatic stress disorder (PTSD) (Dolbier et al., 2021), and dissociation (Fitzgerald & Kawar, 2022). For example, one study of 3,880 young adult college students found that individuals with *any* ACES had two-to-three times the odds (dependent on cumulative ACE score) of depression diagnosis compared to students with no history of ACES (Grigsby et al., 2020).

Further, Husky and colleagues (2022), who examined childhood adversities (CA) within a multitude of universities across nine countries (n = 20,427), discovered that nearly one-third of students reported a lifetime prevalence (31%) and 12-month prevalence (28%) of having any mental health disorder, with MDD (16%, lifetime; 13%, 12-month) and GAD (15%, lifetime; 13% 12-month) being the most prevalent. Supported by seminal research (Felitti, 1998), a cumulative score of childhood adversities of four or more has also demonstrated worse outcomes among individuals on mental health (Forster et al., 2021; Khrapatina, 2016, cross-nationally) and behavioral health (Forster et al., 2021). The above illustrates the importance of examining the relationship between ACEs and mental health outcomes among college students and young adults, in which further research (with an emphasis on symptoms of PTSD and dissociation) among this population is needed.

Academic Well-being. Another growing, but limited, body of literature is the examination of ACEs and college students' and young adults' academic success. Of the extant knowledge, findings indicated that race and ethnicity moderated the relationship between ACEs and academic performance (Watt et al., 2021). Specifically, among students with a cumulative ACE score of four or more, Black and Hispanic students reported significantly lower grade point averages (GPA) compared to their white peers (Watt et al., 2021). Similarly, students with greater early traumatic exposure reported lower Grade Point Averages (GPAs) compared to students with less exposure (Woolman, 2015). Collegiate young adults with histories of ACEs faced more academic barriers compared to their peers with no reported ACES, including trouble with time management

and health ailments that impeded their ability to study and attend class (Hinojosa et al., 2019).

Similarly, students who attended community college with an ACE score of three or more reported feelings of overwhelm, a lack of self-worth, and that they still lived in ACE-like environments; they also reported determination and perseverance in their collegiate studies (Brogden, 2015). Contrary to prior literature that demonstrated a negative relationship between ACEs and academics, findings from Merians and colleagues (2019) demonstrated an insignificant, weak relationship among ACE classes (i.e., Low ACEs, High ACEs, Moderate Risk of Non-Violent Household Dysfunction, Emotional and Physical Child Abuse) and academic performance (i.e., cumulative GPA). The findings above allude to a limited and contradictory body of literature in which further research is needed to parse out the relationship between cumulative ACE exposure and academic well-being.

Individuals at an Increased Risk for Experiencing Adverse Childhood Experiences

Prior research has demonstrated an increased risk of experiencing ACEs based on individuals' varying embodied identities and lived realities, including gender, race, sexuality, and multiple interpersonal violence experiences. To illustrate, women collegiate students and collegiate students of color reported significantly higher mean ACE scores than their white and/or male counterparts (Dolbier et al., 2021). Similarly, compared to their non-Hispanic peers, Hispanic college students were significantly more likely to report experiencing childhood psychological aggression (Nikulina et al., 2021). Women with ACEs, compared to men with ACEs, fared worse on indicators of mental health, including measures of generalized anxiety and social interaction anxiety, PTSD,

disordered eating (Dolbier et al., 2021), and suicidal ideation (Grigsby et al., 2020), as well as physical health (Grigsby et al., 2020). Among collegiate LGBTQ+ students, Sutton and colleagues (2022) found that experiencing sexual victimization during adolescence mediated the relationship between childhood sexual abuse and sexual assault revictimization in college; thus, pointing to sexual revictimization during the early lifespan of LGBTQ+ college students.

Students are also at an increased risk for poorer mental health and IPV based on the number of adverse childhood exposures. Researchers discovered a graded relationship between gender and cumulative ACEs; women with three ACEs were more likely than men to report suicidal ideation (Grigsby et al., 2020). Concerning multiple interpersonal violence experiences, young adult college students with four or more ACEs, compared to fewer or no ACEs, reported higher incident rates of intimate partner violence (IPV) victimization and acts of IPV (Forster et al., 2021).

Intimate Partner Violence

The conceptualization of IPV within this study followed that of the National Center for Injury Prevention and Control, and included, "...physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner)" (Breiding et al., 2015, p. 11). Within this body of literature, the constructs of "dating violence" or "relational aggression" has typically referred to IPV that occurred among emerging youth or during emerging adulthood, including college-aged populations (Breiding et al., 2015; Garner & Sheridan, 2017). Here the term IPV was used to include dating violence resulting from an intimate partner, current or former,

while also providing a broader conceptualization of violence within the gamut of romantic relationships.

Prevalence of Intimate Partner Violence and Types of Victimization

Nationally, college-aged women were among one of the highest risk populations for experiencing IPV, as among those with lifetime reported IPV victimization (sexual, physical, stalking, or psychological aggression), nearly one-in-two women experienced *first-time* IPV between 18-24 years of age (Smith et al., 2018). College-aged women have experienced varying types of IPV, including physical abuse (Edwards, Gidycz et al., 2015; Kennedy et al., 2018, Klipfel et al., 2014; Nikulina et al., 2021; Scherer et al., 2016; Voth Schrag & Edmond, 2018); sexual coercion, aggression, and/or assault (Edwards, Sylaska, et al., 2015; Kennedy et al., 2018; Klipfel et al., 2014; Reed et al., 2016; Scherer et al., 2016; Voth Schrag & Edmond, 2018); and digital dating abuse (Reed et al., 2016). Women college students also reported victimization in relation to emotional and/or psychological abuse (Brewer et al., 2018; Edwards, Sylaska, et al., 2015; Klipfel et al., 2014; Scherer et al., 2016; Vidourek, 2017), harassment or stalking (Amar, 2006; Amar & Gennaro, 2005; Edwards, Sylaska, et al., 2015), and coercive control (Kennedy et al., 2018). Because of the varying types of violence that women students experienced within an intimate relationship, measuring across the IPV spectrum is critical in more holistically contextualizing women's varying experiences of abuse and the intersection of IPV among survivors' identities (e.g., sexual, gender, disability) and life experiences (e.g., ACEs).

Multiple forms of victimization (e.g., psychological and physical abuse) by one or more partner(s) were reported among women college students (Banyard et al., 2020;

Blasdell, 2021; Eshelman & Levendosky, 2012; Kennedy et al., 2018, Marganski et al., 2022). For example, undergraduate women who (since starting college) were threatened/humiliated and/or physically hurt by a dating partner were seven times more likely to experience forced sexual assault (Krebs et al., 2007). Many factors increase women college students' risk for IPV. Findings indicated that relationship length (in months) was a significant, positive predictor of physical assault and sexual coercion by an intimate partner (Eshelman & Levendosky, 2012). Other factors included recent substance use, risky behavior, and adverse mental health (i.e., anxiety, depression, suicide) (Vidourek, 2017).[3]

Trauma-related Effects Related to Intimate Partner Violence

Victimization, such as IPV, is often felt and experienced within the entire body (directly and/or indirectly) and can be reexperienced through residual trauma and unregulated bodily experiences (Emerson & Hopper, 2011; Levine, 2010; van der Kolk, 2015). As such, traumatic exposure often effects the entire human organism (Levine, 2010; van der Kolk, 2015), which has been demonstrated in women college students' reports of myriad IPV-related adverse outcomes on their mental and physical health. Trauma-related effects are inherently a survival, protective instinct (i.e., adaptive coping) that comprise an advanced biological system's response that physiologically upregulates (e.g., PTSD), downregulates (e.g., depression), or shuts down (e.g., dissociation) in the event of an overwhelming threat(s) and/or unrelenting stress

[3] Although a predictive modeling technique was utilized (i.e., logistic regression), causative conclusions cannot be made as to the time order of risk factors for IPV and IPV experiences (e.g., preexisting mental health symptoms precede IPV victimization or IPV victimization precedes mental health symptoms).

(Herman, 1992/2015; Levine, 2010). When effects from victimization are unresolved, unhealthy functioning can result and may present as disease, illness, and/or in the form of unregulated bodily experiences, such as dissociation or PTSD (Ogden et al., 2006).

Mental Health. In the aftermath of victimization, college students reported multiple adverse mental health symptoms, including depression (Amar, 2006; Amar & Gennaro, 2005; Eshelman & Levendosky, 2012; Garner, & Sheridan, 2017; Glass et al., 2022; Holt et al., 2017; Sargent et al., 2016; Wood et al., 2020), anxiety (Herbenick et al., 2022; Shorey et al., 2011), and/or PTSD (Eshelman & Levendosky, 2012; Wood et al., 2020). Herbenick and colleagues (2022) found that 60-67% (varies based on the number of times strangled) of undergraduate women who reported ever being strangled during any lifetime sexual activity also reported overwhelming anxiety and that 21-26% of women reported functional impediments due to depression. However, researchers did not examine whether strangulation occurred, or had not occurred, in relation to IPV victimization. Additional research demonstrated that women college students who reported IPV victimization also reported poorer perceptions of their self-rated health (Copp et al., 2016; Straight et al., 2003).

Also studied among women college students was the negative implications of multiple victimization, and types of multiple victimization (e.g., psychological and physical abuse versus physical and sexual abuse), which was associated with worse and varied mental and physical health symptoms (Eshelman & Levendosky, 2012). Less examined are young adult collegiate women's connection to their body (i.e., dissociation, awareness) associated with IPV victimization. Thus, when examining the adverse mental health outcomes of IPV, measuring the spectrum of abuse types, multiple victimizations,

and the relationship between abuse and students' body connection is essential in contextualizing women students' IPV experiences.

Academic Well-being. In addition to adverse consequences to mental health, individuals with IPV histories also reported negative educational implications. Young women (ages 10-24 years) with reported IPV victimization experienced difficulties and consequences related to concentration, absenteeism, disengagement, lower or failing grades, and higher dropout rates (Klencakova et al., 2021). College students who experienced IPV also faced increased educational difficulties and performed worse academically (e.g., grade point average) (Brewer et al., 2018; Garner & Sheridan, 2017; Patterson Silver Wolf et al., 2018). Banyard and colleagues (2020) found that university students with histories of IPV scored lower on academic efficacy, institutional commitment, and scholastic conscientiousness, while they scored higher on collegiate stress. Further, college students who reported more peer and intimate relational victimization also reported more academic burnout (Dahlen et al., 2013). School burnout has predicted IPV victimization and perpetration (Cooper et al., 2017). Scholars and universities need to more comprehensively understand the association between students' academic well-being, mental health, and IPV victimization to recognize the widespread effects of IPV, including potential avenues of support and advocacy for students (Brewer et al., 2018).

Individuals at an Increased Risk for Experiencing Intimate Partner Violence

Intersections of multiple identities and life experiences, such as race and gender, and multiple forms of victimization must be considered when examining how the social world is constructed and IPV is experienced. The disproportionalities and varying

characterizations of IPV-related impacts, including trauma and resilience, must be empirically examined when understanding individuals' differing and collective experiences of IPV victimization (Crenshaw, 1991).[4] Thus, when examining IPV among young adult collegiate women, the context of their IPV experiences and identities are essential.

As such, findings demonstrated that specific subgroups of college students were at particularly high risk for experiencing IPV, including students with disabilities (Findley et al., 2016; Scherer et al., 2016), sexual minority students (Brewer et al., 2018; Martin-Storey & Fromme, 2016; Graham et al., 2019; Ollen et al., 2017; Pittman et al., 2022), gender minority students (Martin-Storey & Fromme, 2016; Yerke & Defeo, 2016), racial minority students (Patterson Silver Wolf et al., 2018), and young adults and college women with histories of childhood maltreatment (Al-Modallal, 2016; Forster et al., 2021; Nikulina et al., 2021). For example, a study by Patterson Silver Wolf and colleagues (2018) found that college students who identified as American Indian or Alaska Native experienced higher rates of IPV victimization (i.e., emotional, physical, sexual) than their peers. Additionally, among students with histories of victimization, including dating violence or sexual violence (i.e., attempted/completed rape), research indicated worse mental health outcomes among those who were women students and/or students of color compared to men and white students (Holt et al., 2017; Sargent et al., 2016). Among children and young adults (aged 0-24 years), the likelihood of homicide being IPV-

[4] Although not incorporated within this study, other mental and physical health-related IPV implications examined among college-aged students and adolescents included, but were not limited to, suicidal ideation or attempts (Devries et al., 2013; Vidourek, 2017), antisocial behaviors, and disordered eating (Brown, et al., 2009) or weight control behaviors (Ackard et al., 2007). The aforementioned areas of research are essential to this body of literature; however, they are outside of the study's scope, partially due to survey length.

related was higher among female homicide victims, compared to males, and was less likely among Black, American Indian/Alaskan Native, and Hispanic females compared to white females (Graham et al., 2021).

Yoga as a Tool in Response to Victimization

Yoga Prevalence Broadly and Conceptualization

Within the U.S., as of 2017, an estimated 14% of adults (35.2 million) practiced yoga (Clarke et al., 2018). Scholarly research on the study of yoga as a healing modality for trauma has grown exponentially (Chetry et al., 2021; Wieland et al., 2021). Because victimization often influences a person's psychological and physiological states, it is critical to incorporate a holistic response in trauma treatment that seeks to heal mind, body, and spirit (Emerson & Hopper, 2011; van der Kolk, 1994). Yoga is a lived practice and is often utilized as a means of liberation from human suffering and is a path to develop a deeper union with oneself, society, and/or divine being through the connection and alignment of ones' mind, body, ethics, and spirit (Iyengar, 1966/1979; Khalsa et al., 2016; Pattanaik & Rulli, 2019; Schweig, 2010). The practice of yoga was examined as a primary (Nguyen-Feng, Clark, et al., 2019) and a complementary intervention and therapeutic tool to standard psychotherapeutic and pharmacologic approaches in the recovery of trauma (Cramer et al., 2018; Macy et al., 2018; Nguyen-Feng, Morrissette, et al., 2019), including various mental health ailments such as depression, PTSD, and anxiety (Chetry et al., 2021; More et al., 2021; Neukirch et al., 2019; Park & Slattery, 2021; Wieland et al., 2021).

For this study, the operational definition of yoga reflects a practice that was most characteristic of yoga in the Western world, including research and practice. Yoga in the

West has often emphasized a few aspects or limbs (i.e., physical/āsana, rhythmic control of breath/prānāyamā, meditation/Dhyāna) of the entire, traditional, eight limbs[5] or paths of yoga. As such, yoga was conceptualized as a practice that connects physical postures with breathing and meditative techniques (Telles et al., 2017; Weintraub, 2012). Moreover, as partially aligned with studies by Neumark-Sztainer and colleagues (2018 & 2020), who examined yoga among young adults, yoga participation was defined as respondents who engaged in yoga, on average, at least 30 minutes per week in the past six months. Specifically, this study utilized the same dosage, although a shorter timeframe (i.e., six months compared to past year).

Available research has not examined yoga participation exclusively among young adult collegiate women with experiences of IPV and/or ACEs. As such, this literature review draws from adjacent bodies of literature that examined yoga participation among adult individuals of IPV and/or childhood victimization (non-college specific), as well as yoga participation within the larger body of college students and young adults.

Yoga Prevalence and Health Implications among Adults with Childhood Adversities and Intimate Partner Violence Experiences

Among adult women with childhood adversities and/or IPV experiences, who were not explicitly in college, Trauma Center Trauma Sensitive Yoga (TCTSY), also termed Trauma-Sensitive Yoga (TSY), was the predominant form of yoga empirically

[5] "1. Yama (universal moral commandments); 2. Niyama (self-purification by discipline); 3. Āsana (posture); 4. Prān*ā*y*ā*ma (rhythmic control of the breath); 5. Pratyāhāra (withdrawal and emancipation of the mind from the domination of the senses and exterior objects); 6. Dhārana (concentration); 7. Dhyāna (meditation), and 8. Samādhi (a state of super consciousness brought about by profound meditation)" (Iyengar, 2005, p. 21).

examined (Kappas Mazzio et al., 2021), which is a gentler form of Hatha[6] yoga aimed at addressing trauma-related effects. TCTSY among women with IPV histories was associated with improvements in mind-body health, including moderate to strong PTSD changes (van der Kolk et al., 2014; Ong et al., 2019) and enhanced emotional regulation and functioning, physiological well-being, and breath (Nguyen-Feng, Morrissette, et al., 2019; Ong et al., 2019). TCTSY was also associated with an increased intrapsychic and mind-body connection, enhanced perceptions and self-awareness (Nguyen-Feng, Morrissette, et al., 2019; Ong et al., 2019), and social functioning (Ong et al., 2019). TCTSY has been deemed a safer, conducive practice for populations with traumatic experiences and acted as a positive coping strategy that encouraged self-care (Clark et al., 2014; Ong et al., 2019). As the leading yoga style utilized and studied among individuals with experiences of childhood victimization and adult IPV victimization, TCTSY demonstrates promising findings for trauma-related symptoms of the mind and body.

Examining yoga styles more broadly, Dixon-Peters (2007) reported on findings among a small sample of adult women IPV survivors, randomized to a gentle Hatha yoga class with a Viniyoga[7] approach (i.e., treatment group) versus a wait-list control group. The treatment was 90-minutes in length for six consecutive weeks. Significant pre-post-treatment differences were not found *between treatment conditions* on outcome variables, including PTSD and depression. *Within the yoga intervention* only, no statistically significant pre-post findings were found on PTSD. However, individuals in the yoga

[6] Hatha yoga, "physical force," alludes to the system of yoga related to connecting physical postures with breathing techniques (Weintraub, 2012).

[7] Viniyoga emphasizes context-dependent adaptation of yoga to meet the needs and interests of yoga practitioners (The American Viniyoga Institute, 2022).

intervention demonstrated lower depression scores after completing treatment (Dixon-Peters, 2007).

In other studies of adult women with histories of IPV, yoga was practiced as a past or current physical activity and was described by participants as "…very relaxing" and "…a reprieve" (Sanders, 2017). Yoga was also incorporated into a group intervention along with prayer, meditation, creative visualization, and art therapy for women recovering from IPV (Allen & Wozniak, 2010). Adult women with experiences of childhood and/or adulthood victimization, such as sexual abuse, reported on yoga's "healing experience," specifically how yoga benefited their mental, physical, and emotional health, such as anxiety, depression, dissociation, self-concept, and coping skills (Braxton, 2017; Bluntzer, 2016; Dale et al., 2011; Gulden & Jennings, 2016; Stevens & McLeod, 2019). Further, yoga was described as "therapy in motion" (Bluntzer, 2016) and recommended as a means of self-actualization and trauma management (Braxton, 2017). Yoga participation among adults with IPV experiences and histories of ACEs, who are not in college, is a burgeoning field with encouraging implications as a therapeutic modality to healing trauma-related symptoms, including PTSD, depression, and physiological well-being.

Yoga Prevalence, Health, and Academic Implications among Youth, Young Adults, and College Students

Among college students, prior year prevalence rates showed that participation in yoga ranged from 12% to 38%, with lifetime use reported at 29% (Johnson & Blanchard, 2006; Neumark-Sztainer et al., 2020; Versnik Nowak & Hale, 2012; Versnik Nowak et al., 2015). Nationally, among young adult women (18-24 years of age), 27% practiced

mind-body therapies, such as yoga, primarily for stress reduction, general wellness, and overall health (Upchurch et al., 2018). Findings from a systematic review on the prevalence of complementary and alternative medicine (CAM) use among college students showed utilization of yoga at a significantly higher rate (weighted mean = 18%) compared to the general population of U.S. adults (weighted mean = 6%, $p < .10$; Versnik Nowak & Hale, 2012). Yoga courses were also offered for credit within post-secondary institutions (Berent, 2014), and research demonstrated that of the eight limbs of yoga, college students predominantly engaged in the asana (posture) and Prāṇāyāma (breath regulation) limbs of the practice (Brems et al., 2016).

Further, yoga participation among young adults and college students showed positive, preliminary, implications on individuals' mental health (i.e., anxiety and depressive symptoms) (Berent et al., 2014; Breedvelt et al., 2019; Falsafi, 2016; Goldstein et al., 2016; Nemati, 2013; Simard & Henry, 2009; Woolery et al., 2004), perceived stress and relaxation (Berent, 2014; Breedvelt et al., 2019; Goldstein et al., 2016; Kauts & Sharma, 2009; Simard & Henry, 2009; Villate, 2015), feelings of empowerment (Villate, 2015), and on academics (e.g., test anxiety, test performance) (Berent, 2014; Kauts & Sharma, 2009; Nemati, 2013). Yoga was examined among young adults in relation to stress and discrimination (Goldstein et al., 2016; Neumark-Sztainer et al., 2020), as an adjunctive treatment to trauma therapy (Hagen, 2019), as well as among individuals with histories of complex trauma (Lewis, 2017). Although research on yoga for young adults and collegiate students' health and academic well-being is limited and lacks methodological rigor (Breedvelt et al., 2019), findings allude to promising benefits

for which more investigation is needed, particularly concerning PTSD symptoms and educational welfare.

Predictors of Yoga Participation. Upchurch and colleagues (2018) found that among young-adult women (ages 18-24 years), the odds of mind-body therapies, including yoga, were greater among those with higher education and more mental distress, health conditions, and healthy behaviors, while yoga participation was lower for Latinx and non-Hispanic Black women (compared to non-Hispanic white women). Additional studies revealed similar findings, in that yoga was practiced more among young women compared to young men (Neumark-Sztainer et al., 2020; Riley et al., 2012) and less among Hispanic (compared to white) young adults (Riley et al., 2012). Recent and more frequent yoga participation was found among women students born outside of the U.S. (Riley et al., 2012). Further, Neumark-Sztainer and colleagues (2020) found that young adults with reported adverse childhood experiences (ACEs) were significantly more likely to practice yoga than young adults with no reported ACEs.

Contrary to other research, Neumark-Sztainer and colleagues (2020) found somewhat similar prevalence rates of yoga participation among a racially diverse sample of young adults, with the highest prevalence of yoga practiced among individuals of Mixed race or who identified as "other," and the lowest prevalence rates among Native American young adults. Uniquely reported by Neumark-Sztainer and colleagues (2020) was the frequent prevalence of yoga participation (36.4%) among young adults with another gender identity than man or woman. Overall, given the frequent participation in yoga among college and youth populations, and the high prevalence of ACES and IPV among women college students, it is likely that those with interpersonal violence

experiences have or will participate in yoga during their lifetime. Further, suppose students with ACEs and IPV histories are aware of yoga's potential benefits for mental and physical health and academics, and coping with victimization, they may be more inclined to practice, which is especially important given that mainstream, formal services were less utilized among this population (Schramm, 2016). In that case, strengthening the body of literature related to the prevalence, predictors, and implications of yoga participation among young adult collegiate women with ACEs and IPV experiences is critically important.

Body Connection

While there are various conceptualizations of interoceptive awareness or bodily awareness, synonymously termed somatic awareness, this study conceptualized the former as an individual's conscious ability to focus, experience, identify, and articulate present-moment internal, visceral sensations from within one's body (e.g., muscle tension, heart beating), including the autonomic nervous system's sensory response to one's emotions and/or environment (Emerson, 2015; Mehling et al., 2012; Price & Thompson, 2007). Further, interoceptive and bodily awareness include the practice of cognitive discernment related to recognizing intricate bodily cues that denote one's overall emotional and physiologic state of the body (Mehling et al., 2011, 2012; Price & Thompson, 2007).

Yoga is a mindfulness practice that recognizes and fosters the interconnectedness between the mind (e.g., psycho-emotional, meta-cognitive view of one's experience, re-appraisal of stimuli, verbal cues/guidance) and the body (e.g., somatic, physical) by means of interoception and integration that bridges top-down and bottom-up processing

(Emerson, 2015; Gard et al., 2014; Mehling et al., 2011; Price & Thompson, 2007; Sullivan et al., 2018). As an individual engages in yogic practices, such as physical postures and/or breath regulation, and subsequently draws their awareness to their visceral experience of sensations in their body (e.g., muscle contracting or lengthening) (Emerson, 2015), they are connecting to their body.

The opposite can be said of bodily dissociation, which can be characterized as avoidance and distraction from one's internal sensations, emotional disconnection, as well as separation from one's internal milieu or bodily self (Price & Thompson, 2007), in which an individual "splits" between their "observing self" and their "experiencing self" (Emerson, 2015; Herman, 1992/2015; van der Kolk et al., 1996/2007). This disconnection from an individual's mind and body is not uncommon during and following a traumatic event(s), especially sexual victimization, and is a normal adaptive response to an overwhelming threat(s) or stress(ors) (Herman, 1992/2015; van der Kolk, 2015; van der Kolk et al., 1996/2007). As exemplified by van der Kolk and colleagues (1996/2007), "during a traumatic experience, dissociation allows a person to observe the event as a spectator…and to be protected from awareness of the full impact of what has happened (p. 192). Thus, an individual with a traumatic experience(s) can become fearful of feeling their internal sensations, as those feelings may be reminders of the traumatic event(s); therefore, they may alternate between intrusive reliving and numbing of thoughts, emotions, and sensations as in the case of PTSD (Herman, 1992/2015; van der Kolk et al., 1996/2007).

Considering the above, body awareness and dissociation, aspects of body connection (Price & Thompson, 2007), are based on a meta-cognitive view of one's

interoceptive experience/input (Gard et al., 2014; Mehling et al., 2009). For example, through mindfulness-based practices, such as yoga, as individuals repeatedly practiced connecting to their body and drawing awareness to their present felt experience, it can be theorized that they subsequently enhanced their interoceptive abilities, including accurately identifying, integrating, articulating, and accepting important bodily sensations and emotions (Bakal, 1999; Bennetts, 2022; Rhodes, 2015; Tihanyi, Böőr et al., 2016). Thus, they potentially responded to those sensations in a more adaptive (e.g., self-care) versus destructive way (e.g., substance use) (Bakal, 1999; Rhodes, 2015; Tihanyi, Böőr et al., 2016).

Although there is not a robust literature examining aspects of body connection (i.e., interoceptive awareness and dissociation) related to yoga among young adult collegiate women with experiences of IPV and/or ACEs (Pascoe et al., 2021), the adjacent literature on yoga, body connection, and interoception among the non-collegiate adult population may be applied to this population. Interoception and bodily awareness was discussed as an important facet more broadly within the yoga literature (Delaney & Anthis, 2010; Rani & Rao, 1994; Rivest-Gadbois & Boudrias, 2019; Tihanyi & Böőr et al., 2016; Tihanyi & Sági et al., 2016). For instance, Tihanyi, Böőr, and colleagues (2016), found that among yoga practitioners in the general community who engaged in yoga for at least six months, body awareness significantly mediated the relationship between yoga and psychological well-being. Moreover, after controlling for confounding variables, including yoga practice frequency, mindfulness, age, and gender the relationship between yoga and body awareness remained significant.

Interoceptive awareness was similarly discussed as an important facet within the literature that has focused on yoga methodologies specific to at-risk populations, particularly childhood victimization (e.g., Trauma-Sensitive Yoga, TSY) (Barr et al., 2022; Emerson, 2015; Neukirch et al., 2019; Ong et al., 2019; Rhodes, 2015; van der Kolk et al., 2014). Quantitative research conducted by Neukirch and colleagues (2019) examined TSY for PTSD and the critical factor of interoceptive awareness through a case series design, mixed-methods study. Included were women (n = 3) with histories of ACEs (greater than a cumulative score of two) and adult traumatic life events (including sexual and physical assault and emotional abuse). Their investigation indicated that pre-post-yoga scores of interoceptive awareness significantly increased, as well as pre-post-yoga scores of PTSD symptoms, depression, and anxiety significantly decreased (Neukirch et al., 2019).

Additionally, Mehling and colleagues (2018) conducted a randomized control trial and investigated an integrative exercise (IE) intervention (including yoga and mindfulness), comparative to a waitlist control, on interoceptive bodily awareness. The study included war veterans (n = 47) with PTSD. After 12 weeks of receiving the intervention, findings illustrated significant improvements (i.e., change scores) and moderate to large effect sizes between the IE and wait-list control groups on the Multi-dimensional Assessment of Interoceptive Awareness — specifically sub-constructs of emotional awareness, self-regulation, and body listening.

Findings from qualitative research among women with histories of childhood victimization (Neukirch et al., 2019; Rhodes, 2015; West et al., 2017) and youth (Cochrane et al., 2019) reflect the quantitative observances above, including increased

interoceptive capabilities cultivated through yoga, described as enhanced awareness of one's internal bodily sensations (e.g., body tension), mental processes, and emotions. However, for some women, through yoga, interoceptive awareness also illuminated the realization of their mind-body disconnection and dissociation, as well as adverse bodily sensations and emotions related to their traumatic experience(s) (Rhodes, 2015). While for some, this newfound or increased awareness of their body was a positive experience, for others, yoga practice was initially terrifying (Rhodes, 2015; West et al., 2017). Albeit consistent engagement of yoga offered participants with opportunities to practice being present with and desensitized to painful, uncomfortable, and/or distressing interoceptive sensations and emotions, thus, providing experiences of embodied choice-making (e.g., modified practice), coping, and healing (Rhodes, 2015; West et al., 2017).

Gaps in the Literature

Albeit a growing field, there is scarce scholarly literature regarding yoga participation, mental health, body connection, and academic well-being among this at-risk age group (18-24 years) of young adult collegiate women with ACEs and IPV experiences. Available research within this area lacks diversity across individuals' race, ethnicity, gender identity, sexual orientation, disability status, and how these identities might influence participation in yoga and observed outcomes. The compositions of the sample populations were predominately homogenous, including white/Caucasian, cisgender, and heterosexual women. In analysis and reporting, more specificity, such as gender (e.g., cisgender woman, transgender woman, non-binary) and sexual orientation (e.g., bisexual, polyamorous, asexual), along with cross-exploration of intersecting identities are needed. Moreover, few articles examined the co-occurrence of multiple

interpersonal violence experiences, such as ACEs and IPV victimization, and their implications on students' outcomes.

Moreover, additional research is needed on various yoga styles (e.g., rigorous versus restorative, mainstream yoga versus trauma-sensitive yoga) that may be utilized and/or applicable to this population and may have varying effects on students' mental and physical health and educational welfare. There is also little research within this area on the relationship between yoga practice and psychotherapeutic and/or healthcare utilization. Lastly, most research was cross-sectional and employed non-random sampling, thus calling for more experimental and longitudinal methodologies. Overall, these limitations preclude researchers' ability to make broader, stronger statements and generalize findings to a larger population of college students and adult women with ACEs and IPV experiences.

Summary

Aligned with the study's research questions, this chapter broadly presented foundational scholarly literature on young adult collegiate women's mental health and academic well-being. As evidenced, women fared worse on indicators of mental health and academics. Further, this paper reviewed the current literature on young adult collegiate women with reported childhood adversities and abuse from their intimate partner, demonstrating a high prevalence of ACEs and IPV victimization and harmful trauma-related effects connected to women's health and educational welfare. In reaction to adverse outcomes among this population, yoga was discussed as a tool in response to victimization and demonstrated limited, although promising implications. Further, the aspect of body connection, specifically interoception or bodily awareness, among

individuals with interpersonal violence histories was explored as a key factor within yoga research. Also examined were pertinent socio-demographic and life experiences that were evidenced predictors of participation in yoga. Lastly, gaps in the scholarly literature were addressed highlighting the need for diversity and specificity within research and greater use of more rigorous methodology.

CHAPTER 3

THEORETICAL AND CONCEPTUAL FRAMEWORK

The following content provides the reader with a brief history and description of trauma and feminist theory, as well as yoga philosophy, to set the foundation for their convergence and application within this study. Trauma theory and yoga philosophy provide a lens for psychologically and physiologically examining people's suffering, and feminism situates people's suffering within a social, political, and economic framework. After examining trauma and feminist theory, and yoga philosophy, I discuss the application of a yoga feminist trauma conceptual framework that supported this study. Together, trauma theory, feminism, and yoga provide a pathway for examining and responding to suffering individually and collectively.

Trauma Theory

History

Pain and suffering at the hands of tragedy are core to our human existence; it is the currency of living. However, as Peter Levine (2010), seminal trauma clinician and stress scientist, writes, "it does not…have to be a life sentence" (p. 37). Within this study, trauma is conceptualized as the adverse and long-lasting implications of interpersonal violence victimization or abuse, although trauma can also occur outside of an interpersonal context (e.g., natural disaster) (Tseris, 2019). What we know widely today to be trauma, as a scientific concept, dates to the mid-nineteenth century to the industrial revolution, specifically railway accidents among civilians that came to be known as "railway spine" and "traumatic neurosis" (Sütterlin, 2020; van der Kolk et al., 1996/2007). These conditions, such as whiplash, paralysis, and convulsions were

theorized to be psychological in origin, such as fright and shock, as well as biological, specifically involving the central nervous system. These early theories involving the psychophysiology of trauma largely hold up today in how modern trauma theory is understood.

Notably, the origins of trauma theory were also built upon a sexist theorization of the medical hypothesis and diagnosis of "hysteria" (Herman, 1992/2015; Ringell & Brandell, 2011). Instead of acknowledging and validating systemic violence, particularly against women and children with significant histories of childhood sexual abuse and the institutional causes (e.g., patriarchy), women were diagnosed with hysteria — a heredity cause originating in the uterus (Herman, 1992/2015; Meretoja, 2020; Ringell & Brandell, 2011). Originally, around the mid-1800s, the French psychiatrist Briquet reported on his patients' histories of trauma and the origins of their illness (e.g., hysteria), along with symptoms including somatization. In the later part of the 1800s, childhood sexual abuse became more acknowledged and documented. Conversely, with this revelation emerged claims of false memories by individuals, such as Alfred Fournier (van der Kolk et al., 1996/2007). Further, in The Aetiology of Hysteria (1896), European psychologist Sigmond Freud acknowledged the widespread epidemic of sexual abuse as a means of claiming the etiology of trauma, specifically the connection between hysteria and "premature [childhood] sexual experience," often at the hands of male relatives (Herman, 1992/2015; Kurtz, 2018; Meretoja, 2020). However, due to political backlash put forth by his thesis, Freud changed his assertions and claimed that women were erotically excited and fantasized about their sexual descriptions, denying the sexual violence, exploitation,

and traumatic events inflicted upon these women and children (Herman, 1992/2015; Wilkin & Hillock, 2014).

Built from these foundational theorizations of trauma, in the late nineteenth and early twentieth century, psychological characteristics of trauma re-emerged into public consciousness with the traumatic toll of World War I (Herman, 1992/2015; Ringel & Brandell, 2011). Albeit, originally, symptoms of hysteria (e.g., screaming, weeping, unresponsiveness, loss of memory and feeling) seen in male soldiers post World War I was attributed to "combat neurosis," then "shell shock" (i.e., exploding shells or gunfire), and was considered a neurotic stress syndrome, soldiers' symptoms were later attributed to low soldier morale (Herman, 1992/2015; Levine, 2010). Moving into the mid-to-late-twentieth century, contrary to early theorists, symptoms of extreme stress theoretically shifted from being internal in origin (e.g., biological, psychological) to external (e.g., traumatic incidents) (Buelens et al., 2014). This ideological shift was partially attributed to similar symptomology of individuals' welfare expressed among soldiers post-war (e.g., World War II, Vietnam War), mass casualties among civilians (e.g., Holocaust, Coconut Grove Fire, colonization, genocide), and the women's liberation movement, precisely the re-emerged increased public awareness of sexual abuse against women and children (Herman, 1992/2015; Kurtz, 2018; Ringer & Brandell, 2011).

However, it was not until after the Vietnam War that the adverse psychological effects of the war were genuinely studied through large-scale, systematic scientific study (Herman, 1992/2015). Moreover, in the aftermath of the Vietnam war, with the public validation of psychological trauma, emerged the diagnostic category of post-traumatic stress disorder (PTSD) by the American Psychiatric Association (Herman, 1992/2015).

Thus, this emergence foundationally shed light and "credibility" on similar trauma symptomology across various traumatic contexts, and emphasized the recognition of PTSD symptomology, such as "rape trauma syndrome," among individuals with experiences of interpersonal violence (Herman, 1992/2015). Specifically, symptoms of flashbacks and nightmares that plagued post-war soldiers also exponentially plagued individuals who were raped (Herman, 1992/2015; van der Kolk et al, 2014), with seminal trauma clinician and theorist Judith Herman naming it "the combat neurosis of the sex war" (1992/2015, p. 28).

Theory

With the validation of psychological trauma and symptomology came the medical diagnostic definition of trauma (i.e., PTSD) within the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), which is the diagnostic tool utilized by health care professionals throughout the United States as a guide and criteria to diagnosing mental health disorders (American Psychiatric Association [APA], 2013). The DSM-5 specifies PTSD as direct or indirect exposure to a traumatic event(s) involving actual or threatened death, serious injury, or sexual violence, along with presented symptomology related to the event(s) that emerged post incident(s) (APA, 2013; Briere & Scott, 2015). The DSM-5's criteria for diagnosis mitigates victimization and traumatic events that are not life-threatening, per se, or for which either serious injury or sexual violence has not occurred. Experiences that can result in traumatic repercussions that are not necessarily life-threatening or non-severe injurious victimization, such as child abuse, psychological abuse, stalking, physical violence, or sexual coercion, would not "satisfy" as trauma under the current diagnostic definition of the DSM-5. Thus, to broaden this narrower

conceptualization of trauma, and to more accurately reflect individuals' interpersonal violence experiences, this study conceptualized trauma as also including an event(s) that is "…extremely upsetting…[or] temporarily overwhelms the individuals' internal resources and produces lasting psychological symptoms" (Briere & Scott, 2015, p. 10). Additionally, this study conceptualized trauma as including an event(s) that "…involves threats to life or bodily integrity, or a close personal encounter with violence and death" (Herman, 1992/2015, p. 33).

Thus, as discussed above, we presently know that trauma occurs in relation to exposure to a distressing event(s) that may overwhelm an organism's typical response and adaptations to life (Herman, 1992/2015). As such, although labeled a disorder, trauma is not an illness or disease but an adaptive survival instinct to one's lived experiences that can impact the entirety of a human organism — body, brain, and mind (Herman, 1992/2015; Levine, 2010; van der Kolk, 2015). As described by Peter Levine (2010), "rather than being a disease in the classical sense, trauma is instead a profound experience of 'dis-ease' or 'dis-order'" (p. 34). As such, the human organism's intelligent survival instinct is part of an advanced biological system (Levine, 2010; van der Kolk, 2015) that may upregulate (e.g., irritability, hypervigilance) and/or downregulate (e.g., reduced interest and enjoyment in activities, "spacing out") in the event of an overwhelming actual or perceived threat(s) or stress (APA, 2013; Herman, 1992/2015; Levine, 2010; van der Kolk, 2015; van der Kolk et al., 1996/2007).

Trauma theory also posits that people can suffer from unresolved traumatization when they do not have the internal and/or external resources to respond, cope, and heal, including to regulate and/or re-establish equilibrium from external threat(s) or internal

manifestations of the threat(s) (Herman, 1992/2015; Levine, 2010; Ogden et al., 2006; van der Kolk, 2015). Our biology, specifically the autonomic nervous system, is hardwired to oscillate between states of sympathetic arousal and parasympathetic rebound (Levine, 2010). Trauma theory illuminates the response and potential effects of traumatization, including psychosomatic manifestations related to changes in a person's physiological arousal, emotional states, cognition, and memory (Herman, 1992/2015; Levine, 2010; Ogden et al., 2006; van der Kolk, 2015; van der Kolk et al., 1996/2007). When an individual encounters an overwhelming terror, whether actualized or not, a biological response ensues through the body's autonomic nervous system by means of arrest (increased vigilance, scanning), flight/flee, freeze, or fold (collapse, particularly in the instance of no or few opportunities to escape) (Levine, 2010). Effects of traumatization can present in various ways, including hyperarousal with persistent anticipation of danger and intrusion of the traumatic memory associated with the event(s), as well as hypoarousal or constriction as to numbing, shutting down or immobilization, disconnection, or dissociation from the trauma experience, including one's body (not exclusive) (APA, 2013; Herman, 1992/2015; Levine, 2010; van der Kolk et al., 1996/2007). Moreover, the physiological changes in arousal, including unregulated bodily experiences, such as an uncontrolled cascade of emotions and physical sensations, may be connected to reminders of the trauma that repeatedly replay in the body like a broken record (Herman, 1992/2015: Ogden, 2006; van der Kolk et al., 1996/2007). As such, individuals with traumatic experiences, particularly interpersonal violence victimization, may continue to defend against a past threat that is anchored to the present

and anticipated to return in the future (Herman, 1992/2015; Ogden, 2006; van der Kolk, 2015; van der Kolk et al., 1996/2007).

The main takeaway is that a traumatic incident(s) is experienced in the interconnection of the mind and body, which is evident in the earliest empirical evidence of trauma theory to the modern day. Moreover, trauma is situated within multiple sociopolitical contexts and ideologies, such as racism, sexism, and patriarchy. As such, the study of and response to traumatic incidents, and potential consequences, must be addressed from the mind-body connection and contextualized within places of power, privilege, and oppression.

Feminist Theory

Feminism is a collective historical, social, political, and economic movement to end sexist oppression (Gringeri et al., 2010; hooks, 2000/2015). While acknowledging shared commonalities in women's lived experiences, feminism, particularly Black feminism, acknowledges differing embodied realities based upon interlocking systems of privilege and oppression (Collins, 1990; Romero, 2017). Specifically, emergent from the mid-1800s and early 1900s, from the overlapping struggle for liberation and rights among African American women, emerged the now modernized term intersectionality (Bilge, 2013; Crenshaw, 1991; Romero, 2017). An intersectional lens critically examines inter-related, convergent, and compounding systems of inequality and privilege, encoded within particular bodies, related to constructs of gender identity and expression, sexual orientation, class, race, ethnicity, nationality, and disability (not exclusive) (Disch & Hawkesworth, 2016; Romero, 2017). For example, at the cross-section of race and gender, undergraduate Black collegiate women at Historically Black Colleges and

Universities (HBCUs) reported substantially high rates of IPV victimization (Barrick et al., 2013).

While feminism is a social justice movement based on sexist oppression, including issues of power and praxis (Gringeri et al., 2010; hooks, 2000/2015), critical and post-modern feminism does not solely focus on or benefit the hegemonic conceptualizations of what constitutes a female body or femininity, nor does it privilege certain genders or gender expressions over another (hooks, 2000/2015; Gringeri et al., 2010). Further, Patricia Hill Collins (1990) discussed the process of deconstruction, as exemplified by Sojourner Truth, as "…exposing a concept as ideological or culturally constructed rather than as nature or simple reflection of society" (p. 14). Thus, critical post-modern feminism invites reflective questioning of the assumptions of the natural world, including aspects that are invisible, common-sense, or birthed (Disch & Hawkesworth, 2016; Romero, 2017). Essential notions and categories of difference (Gringeri et al., 2010) that are historically, culturally, and geographically constructed, predominately define sex, race, class, and sexuality entrenched in sociopolitical constructions that are nested in power and that create hierarchies of dominance and subordination and privilege and disadvantage (Disch & Hawkesworth, 2016). As such, identities and social phenomena, including IPV, that are deemed binary, fixed, and natural, are instead viewed from a lens of multiple, fluid, and intersecting realities (Gringeri et al., 2010).

Along with intersectionality is the aspect of standpoint theory, specifically situated knowledge, which questions the universality of absolute, unbiased truth (Disch & Hawkesworth, 2016; Romero, 2017). Moreover, situated knowledge centers on systems of oppression (e.g., racism, sexism, ableism, heterosexism, classism, antisemitism) that

overlap and influence an individual's and collectives' social position (e.g., education, occupation, geographic, socio-political), and thus their experiences, understanding, and knowledge production (Disch & Hawkesworth, 2016; Romero, 2017). For example, a Black women's standpoint is "…in essence, an interpretation of Black women's experiences and ideas by those who participate in them" (Collins, 1990, p. 15). Experiences, knowledge, and beliefs within a social group vary dependent upon intersecting social positions based on power and privilege.

Thus, feminism emphasizes the various lived experiences of women and analyzes how social constructs (e.g., gender, race, class, sexuality, nationality, ability) influence their lived realities, including one's social positions, identities, and viewpoints (hooks, 2000/2015; Romero, 2017). While acknowledging the uniqueness of an individual's experiences, situated knowledge from a group standpoint also sheds light on shared realities, including similar forms of discrimination (Collins, 1990; Romero, 2017). Thus, by aggregating individual lived experiences and consciousness, a unique group consciousness may emerge through common experiences (Collins, 1990). Moreover, feminism requires individuals to develop a personal and collective critical political consciousness (hooks, 2000/2015). However, consciousness-raising alone is insufficient; feminism must involve praxis, which involves both theory and action while centering those most vulnerable to bearing the brunt of oppressions (Gringeri et al., 2010; hooks, 2000/2015).

Yoga Philosophy

The earliest known evidence of yogic practice dates to about 2500 B.C.E from the Indus Valley Civilization (Singleton, 2010), with the first mention of the word "yoga"

appearing in the seminal scriptures of the Vedas (Shearer, 2020; Sparrowe, 2003). Foundational conceptualizations of yoga continued to evolve from influential scriptures, including the Upanishads, the Bhagavad Gita ("The Lord's Song"), the Yoga Sutras of Maharishi Patañjali, and the Hatha Yoga Pradipika (Shearer, 2020; Singleton, 2010). Yoga is not only a practice but a way of life — a way in which one carries themselves. Yoga is described in many ways, including as a set of principles and beliefs, "skill in action" (Easwaran, 2014), as well as a discipline or practice of "yoking" (or uniting) a person with the Absolute (Patañjali, 1990; Sparrowe, 2003; Iyengar, 1966/1979), or the Atman (individual consciousness, spirit, soul) with the Brahman (universal, pure, consciousness; absolute reality) (Sparrowe, 2003). Yoga is also described as directing and focusing one's attention on (Iyengar, 1966/1979), a method of mastering or controlling the "restlessness of the mind" (Bhagavad Gita, as cited in Iyengar, 1966/1979) or "modifications of mind-stuff," (Yoga Sūtra 1.2; Patañjali, 1990, p. 3), as well as "…a deliverance from contact with pain and sorrow" (Bhagavad Gita, as cited in Iyengar, 1966/1979). Foundational yoga meditation practices were outlined in the Maitrayaniya Upanishad, including the 'six-fold yoga' path for joining or controlling various aspects of the mind, breath, and senses as a means of realizing one's self-actualization, and reflect early sentiments of Patañjali's Yoga Sutras (Easwaran, 2014; Shearer, 2020; Sparrowe, 2003).

Building off the foundational 'six-fold yoga' path, the Yoga Sutras of Maharishi Patañjali was the first amalgamation of yoga's seminal, ancient ideas and practices that were codified into 195 sutras (i.e., threads, aphorisms, terse statements) (Patañjali, 1990; Singleton, 2010). Patañjali's yoga sutras and the eight limbs (i.e., stages or interwoven

parts) of Raja yoga became known as ‘classical yoga’ and developed into the foundational text of the 20th century (Patañjali, 1990; Singleton, 2010). These eight limbs of yoga include: (1) Yama (abstinence, regulation, universal moral commandments and ethics), (2) Niyama (self-observances, training, self-purification), (3) Asana (meditative, postural practice), (4) Prāṇāyāma (rhythmic control of the breath, regulation, expansion of breath), (5) Pratyāhāra (withdrawal and emancipation of the mind from the domination of the senses and exterior objects), (6) Dhārana (concentration), (7) Dhyāna (meditation), and (8) Samādhi (contemplation, absorption, super-consciousness state) (Iyengar, 1966/1979; Patañjali, 1990).[8]

Of these eight limbs, the stages or paths that became the most emphasized and practiced within Westernized culture were Asana, Prāṇāyāma, and Dhyāna (Khalsa et al., 2016). The limbs for which a person wishes to engage guide the type(s) of technique(s) in which they practice. For example, one of the more known yoga methods in Western culture is Hatha yoga (Patañjali, 1990), which encompasses postures, breathwork, and meditation (Khalsa et al., 2016), and is often known as “body-yoga” (Shearer, 2020). The emphasis of ‘modern postural yoga’ is essentially pulled from the Hatha Yoga Pradipika, the seminal text of Hatha yoga, which emphasized the physical practice as opposed to the metaphysical (Shearer, 2020). Specifically, the third limb of yoga, Asana, is conceptualized as a tool that exercises muscles, nerves, and glands in the body that enables movement, balance, lightness, agility, endurance, and the overall betterment of health and vitality (Iyengar, 1966/1979). By gaining control over the body through

[8] Sanskrit language is utilized given its application within several foundational yoga texts (Shearer, 2020).

Asana, an individual can achieve mental equilibrium (or evenness of mind) instead of unsteadiness and fickleness of mind (Easwaran, 2014; Iyengar, 1966/1979). Further, within Hatha Yoga, drawing one's attention to the breath, regulating, and balancing the Prāna (upward force, vital life energy) and the apāna (downward force and outward energy), also considered prāṇāyāma, are essential in regulating the mind and bringing about a state of calm (Patañjali, 1990). Lastly, dhyāna (meditation), is described as directing one's attention inwards (Shearer, 2020) and a continuous flow of uninterrupted concentration (Iyengar, 1966/1979; Patañjali, 1990). Dhyāna is considered a practice of serving others by means of cultivating a peaceful mind (Patañjali, 1990).

Although yoga was historically practiced for spiritual and philosophical means, yoga was not traditionally conceptualized as a therapeutic method (Khalsa et al., 2016, Sparrowe, 2003). However, with foundational textual evidence of the health benefits of yoga in relation to diseases and disorders in the Hatha Yoga Pradipika, along with the scientific study of yoga therapy in modern India, colonialism and growing Indian nationalism, the influence of the international modern physical culture movement, (e.g., body-building, wrestling, gymnastics), and the scientific study of yoga therapy in modern India, the practice of yoga was revitalized and gained notoriety as a therapeutic practice for health, fitness, and well-being (Khalsa et al., 2016; Singleton, 2010). Further, The Yoga Institute, established in 1918 by Shri Yogendra (also known as Manibhai Haribhai Desai), who was heavily influenced by modern physical culture, made yoga accessible to the public, including householder society (people with commitments such as jobs and families), as opposed to the traditional renunciate (living close to nature and on fringes of society) (Shearer, 2020), by offering simplified yoga by means of asana and Prāṇāyāma

(Khalsa et al., 2016; Singleton, 2010). Yogendra's seminal conceptualization of yoga largely parallels present-day yoga; a practice of "body-mind-spirit" (Singleton, 2010).

Moreover, in the U.S., around the mid-twentieth century, the physical benefits of yoga took rein as part of a cultural shift that was preoccupied with health, alternative and complementary medicine, fitness, and well-being (Khalsa et al., 2016; Shearer, 2020). With the emphasis on postural (asana) yoga, including influence from discourses on physical body culture, "healthism," western esotericism, and commodification (Berila et al., 2016), yoga was secularized for health, fitness, and medicalization and gained wider popularity in the 1970s and 1990s (Khalsa et a., 2016; Shaw, 2021; Singleton, 2010). As such, the yoga commonly practiced today within India and the U.S. continues to highlight physical vigor and mental and physical health reasons for utilizing this modality for prevention, alleviation, and healing of disease-related symptoms, as well as to support overall well-being (Birdee, et al., 2008; Cramer et al., 2018; Jeter et al., 2015; Wang et al., 2019).

Yoga Feminist-Trauma Conceptual Framework

This study uniquely united yoga philosophy and methodology with established literature on an integrated feminist-trauma framework, thus creating a yoga feminist-trauma conceptual framework (Brown, 2004; Wilkin & Hillock, 2014). As trauma is experienced within one's entire system — body, brain, and mind (Herman, 1992/2015; Levine, 2010; van der Kolk, 2015), as well as within a social system (hooks, 2000/2015; hooks, 1984/2015), the practice of yoga, which is a mind, body, and spiritual practice of personal and social ethics, aligns with this framework.

Non-Violence

Feminist and trauma theory conceptually fit with yoga philosophy and methodology for several reasons. One reason for this conceptual fit is the overlapping ethical principles of non-violence, or harm reduction, between feminist theory and Ashtanga yoga. Both feminism and yoga are personal and social liberatory practices aimed at ameliorating violence and the suffering of lived experience inflicted by the external world. Feminist theory is a social, political, and economic movement to end sexist oppression (Gringeri et al., 2010; hooks, 2000/2015); thus, non-violence is inherent in the movement itself, particularly among individuals most at risk of experiencing harm, given one's gender identity and expression, race, ethnicity, sexual orientation, disability, nationality, and age. Within yoga, the Yamas are moral, social practices, codes, or vows that govern one's relation with the world, including interpersonal relationships (Patañjali, 1990). This includes the ethics of Ahiṁsā, which means non-violence or not causing pain in thought, word, or action (Patañjali, 1990). Niyamas are ethical, personal practices or codes that govern one's personal observances (Patañjali, 1990). One Niyama includes Svādhyāyā, which means the study of the spiritual texts for self-understanding (Pantañjali, 1990), which can be thought of as a mechanism of not causing pain as one reflects and acts upon the state and habitual patterns of their mind, body, and spirit and their effect on the world. Illustrated by Ballard (2022), we, as a society, must actively participate in healing and dissipating violence and oppression, including the ways in which we perpetuate and experience violence, and the tension and stress in which they cause, otherwise the cycle of harm and suffering continues.

However, despite the ethics of Ahiṁsā, yoga has a history of exclusion based on gender, caste, and creed (Shearer, 2020), as well as a history of sexual violence in the

West (Black, 2020; Rousseau et al., 2019). Sexual violence within the yoga community has primarily occurred among prominent male authority figures, thus, pointing to the continued prominence of power and patriarchal structures underpinning interpersonal violence (Black, 2020). Given the (re)traumatization experienced among individuals outside and inside yoga communities and spaces, particularly among minority populations, as well as the history of abuse and exploitation within the yoga community, the institutional framework of trauma-informed care (TIC) extended to yoga (Emerson & Hopper, 2011). TIC is founded on the objective to not harm, including the universal, institutional understanding of the prevalence and negative consequences of violence and the re(traumatization) from service systems (Fallot & Harris, 2008; Harris & Fallot, 2001). Trauma Center Trauma-Sensitive Yoga (TCTSY) is the most evidence-based yoga practice that is grounded within the TIC framework. TCTSY is Hatha based and is grounded in theories of trauma, feminism, and attachment, along with neuroscience, that centers around invitational language, choice-making, non-coercion, shared authentic experience, and interoception (Banks-Harold, 2020; Emerson & Hopper, 2011).

Additionally, although feminist theory and yoga are based on ethics of non-violence, trauma theory has a history of pathologizing underpinnings and stigmatization (e.g., hysteria hypothesis) (Herman, 1992/2015; Wilkin & Hillock, 2014), despite efforts to safeguard against harm and re(traumatization), including the development of the TIC framework (Harris & Fallot, 2001). Thus, the application of trauma theory, which is embedded in a medical based model, can result in further labeling of individuals with certain illnesses or diseases from places of power differentials, particularly vulnerable and marginalized groups (Herman, 1992/2015; Levine, 2010; Worell, 2001). Feminist

interventions based on feminist theory address this limitation of trauma theory by questioning the deficit-based model of psychopathology as another label or categorization of power and oppression (Tseris, 2013, 2019). Moreover, aligned with the main objectives of yoga, feminist interventions emphasize a strengths-based model in the face of adversity that promotes health, empowerment, safety, assets, resilience, lifestyle, and capabilities in the face of adversity (Tseris, 2013; Worell, 2001). The belief is that by taking a strengths-based approach grounded in feminist theory, clinicians, practitioners, and researchers are less likely to harm by positing a deterministic trauma framework, such as making a plethora of assumptions and assertions regarding the impact of violence and traumatic experiences on an individual's mind, body, spirit, or overall functioning (Tseris, 2013).

Conversely, however, examining social phenomena, such as interpersonal violence, through the lens of trauma theory may provide a basis to better understand and normalize trauma-related effects of survival (i.e., adaptive coping), that when left unresolved, may impact the healthy functioning of a human organism (Herman, 1992/2015; Levine, 2010). Moreover, receiving an identifiable diagnosis (e.g., PTSD, depression) resulting from a traumatic experience(s), such as interpersonal violence, may not be experienced as stigmatizing and further traumatizing but can also provide some individuals with solace, relief, distress reduction, and a sense of validation within the diagnostic paradigm (Tseris, 2013; van der Kolk et al., 1996/2007).

Within this study, the aspect of non-violence within the yoga feminist-trauma conceptual framework is essential given this paper's foci on interpersonal violence. The reader can begin to steep themselves in the overlapping ethical principles of non-violence

and harm reduction between feminist theory and Ashtanga yoga and the relationship with trauma theory. Further, this framework provides the reader with a basis to examine violence and trauma within a personal-political frame with the aim of ameliorating individual and collective suffering through uplifting non-violent lived practices, specifically that of yoga.

Suffering and the Lived Experience in the Body

The second reason feminist and trauma theory and yoga philosophy and methodology conceptually fit is that they all attend to the felt, lived experience within the body. Moreover, at their core is the aim to eradicate individual and collective pain and suffering (i.e., Sanskrit term duhkha). The amalgamation of feminist and trauma theory and yoga philosophy provides a lens for examining (i.e., discernment) experiences within a sociopolitical context in which traumatization may occur and the human organisms' biological survival system responds.

Trauma theory illuminates the prevalence and potentially harmful effects of an external threat(s) and stress, such as interpersonal violence, that may shed light on an individual's suffering, potential symptomology, and resilience. Trauma theory also provides a paradigm to understand the human's autonomic response, such as coping (e.g., dissociation), to gender-based violence as normal and essential for survival, as opposed to a character flaw or gender-specific biology (Herman, 1992/2015; MacKay & Rutherford, 2012; Tseris, 2019; Wilkin & Hillock, 2014). Understanding the prevalence of violence and traumatic symptomology, including the classification of identifiable diagnoses, on a larger scale may also help to identify common experiences among a collective and can provide a sense of community, strength, and healing, as well as normalcy regarding

responses to an overwhelming threat or stress that can result in trauma-related effects (Herman, 1992/2015; van der Kolk et al., 1996/2007). This is particularly true among individuals who are oppressed, in which violence is not one or a few incidents but a covertly or overtly current and longstanding historical reality (Hillock, 2011; Wilkin & Hillock, 2014).

Trauma theory also provides a lens for understanding individual suffering by means of the biological, adaptive responses to traumatic experiences (from exposure to long after) (Levine, 2010; van der Kolk et al., 1996/2007; Wilkin & Hillock, 2014), as well as broadens awareness to the social milieu in which violence is situated (Tseris, 2019). However, trauma theory does not fully elucidate the empirical, historical, and political evidence for which traumatization manifests, including interpersonal violence (Tseris, 2019; Wilkin & Hillock, 2014). Brown (2004) asserts that traumatization to a person does not solely exist as according to the DSM-5 diagnosis (i.e., exposure to actual or threatened death or serious injury); rather, "...what will be symbolically evoked by this experience is the manner in which the social context responds to the person who has been traumatized" (p. 465). Thus, the aim of feminist and trauma theory (as originally described by Judith Herman) is to work toward community and social consciousness and growth (Webster & Dunn, 2005) — necessitating a political movement (Herman, 1992/2015). Yoga and feminist theory fill this aforementioned gap by attending to the structural, social factors that create and contribute to individual and collective suffering, as well as the ways that trauma manifests based on intersecting and compounding systems of power, privilege, subordination, marginalization, and oppression (Crenshaw,

1991; Disch & Hawkesworth, 2016; Worell, 2001). Thus, addressing the personal suffering of individuals is a political, collective commitment (hooks, 2000/2015).

Moreover, trauma theory and yoga are aligned, as they both explore the lived experience by means of the autonomic nervous system (ANS), including hyperactivation (e..g, rajas) and hypoactivation (e.g., tamas), for which the body is a tool for transformation (Wilkin & Hillock, 2014). As such, there is a growing body of empirical research on yoga for one's mental, physical, and spiritual health (Khalsa et al., 2016). Yoga, therein, is conceptualized as a practice to regulate trauma-related symptoms, including psychosomatic presentations (e.g., PTSD, depression, anxiety). Yoga is a "tool" that enhances one's internal and external resources to regulate their bodily experiences (e.g., physiological arousal) and to re-establish equilibrium (Iyengar, 1966/1979). For example, along with decentering or re-appraisal of thoughts, emotions, and bodily sensations (e.g., Mindfulness-Based Cognitive Therapy) (Kabat-Zinn, 1990/2013), contemporary therapy for traumatization (e.g., PTSD) often includes mind-body practices, such as movement, breathing, relaxation, and mindfulness techniques as a means of restoring the balance of the ANS (Levine, 2010; van der Kolk, 2015; van der Kolk et al., 1996/2007; Wilkin & Hillock, 2014).

Moreover, a yoga feminist-trauma conceptual framework attends to the lived experience, particularly suffering. This sentiment is reflected among women survivors of sexualized violence in discussing healing within a lived feminist-yoga framework, specifically, the interconnection between one's thoughts, feelings, and body (Arnoldin, 2016). This is critical as women discussed trauma as "embodied" and "…part of our physiology;" thus, necessitating an embodied practice (i.e., yoga) and a politicized

approach (i.e., feminism), that situates women's experiences of abuse, including the aftermath, within a social, political, and cultural framework (Arnoldin, 2016; Tseris, 2019). Further, Arnoldin (2016) shared participants' view that along with feminism being cerebral, "feminism lives in the body" (p. 88); thus, providing further evidence as to the application of a yoga feminist-trauma conceptual framework.

Within this study, the application of a yoga feminist-trauma conceptual framework provides a basis for the reader to examine the lived experience in the body, specifically the personal and collective realities of young adult collegiate women's interpersonal victimization rooted in systems of domination and oppression. This framework provides a lens to examine students' symptomology (i.e., PTSD, depression, anxiety), body-connection, and academic well-being on an individual level (i.e., the diagnostic paradigm, standardized measurement), while also placing symptomology within its social context (e.g., patriarchy, racism, homophobia, transphobia, xenophobia). This is especially important as Black (2020) highlights that yoga, as an intervention or therapy for individuals with histories of sexual violence, can fall trap to neoliberal conceptualizations of personal mental management, scapegoating social institutions (law, health, politics) that create and perpetuate abuse. Similar sentiments can be said about trauma theory without feminist theory. Thus, a yoga feminist-trauma conceptual framework can help us understand that the threads of personal and collective suffering at the hands of interpersonal violence within systems of power, racism, and patriarchy are interwoven strings of the same web.

Individual and Collective Consciousness Raising

The third reason yoga philosophy and methodology and feminist and trauma theory conceptually fit are their liberatory nature through individual and collective consciousness raising. Yoga and feminism provide a lens of discernment in which to reflect and examine the personal and collective human experience. Moreover, yoga and feminist theory overlap, in that their core foundation is to eradicate individual and collective pain and suffering (i.e., duhkha) through awareness and raised consciousness of internal (e.g., habitual patterns of mind or action, internalized oppression) (Bhagavad Gita, as cited in Iyengar, 1966/1979; Pantañjali, 1990) and external structures (e.g., systems of power and oppression) (hooks, 2000/2015). Yoga teaches one to "…see themselves in all, and all in them" (Easwaran, 2014) and "is a bridge" that connects individuals to themselves and the collective (Barkataki, 2020). Thus, yoga illuminates the illusion of separation between oneself and others (Barkataki, 2020). As such, one's personal lived experience, including that of suffering, is not separate from the lived experience and suffering of others. Therefore, individual and collective consciousness raising are two sides of the same coin, they cannot be separated, and one cannot truly be done without the other. Namely, seminal feminist leader Patricia Hill Collins (1990), discussed the connection between individual consciousness and distinctive group consciousness, particularly among the intersections of race and gender, and the shared experiences though storytelling among Black women. Collins (1990) stated, "by aggregating and articulating these individual expressions of consciousness, a collective, focused group consciousness becomes possible" (p. 26). Together, feminism and yoga emphasize self-and-collective actualization by means of universal rights and freedom, along with mutual growth and connection.

Although trauma theorist Judith Herman (1992/2015) discussed the notion of raising public consciousness and social reform, trauma theory lacked the momentum that feminist theory demanded. Feminist critiques of trauma theory included the idiocrasy of attending to an individual's pathology while failing to attend to and raise awareness of the structural factors that created or contributed to the very nature of an individual's symptomology and suffering (Worell, 2001). Moreover, an individual's adaptive, coping mechanisms to traumatic experiences should not be pathologized; rather, the perpetration and normalization of violence by society is the true pathology (Tseris, 2013). Thus, feminist theory fills the limitations of trauma theory by situating and centering the attention on one's symptomology within the sociopolitical system that create, condone, and perpetuate such trauma through individual and collective political consciousness (hooks, 2000/2015). Moreover, although consciousness-raising alone is imperative, yoga, conceptualized as "skill in action" (Easwaran, 2014), and feminism require that we go beyond awareness by connecting theory to action (i.e., praxis) (Gringeri et al., 2010). Thus, personal and social consciousness is one way feminist interventions and yoga transform the social, emotional, and political milieu.

Within this study, the application of a yoga feminist-trauma conceptual framework provides a framework for the reader to examine consciousness-raising as it relates to the interpersonal violence experienced by young adult collegiate women. Political consciousness must be a personal and collective act in which one situates their pain and suffering alongside the pain and suffering of others. True personal awareness cannot be separated from the awareness of the "other" — living is a political action; thus, our individual experiences are intrinsically connected to the experiences of the collective

(Easwaran, 2014). Therefore, this framework situates the participants' experiences of violence within a personal but also political, collective lens.

To truly understand and uproot violence and engage in individual and collective healing, we must bring awareness to the suffering of individuals and communities while illuminating varying expressions of collective consciousness. Consequently, a feminist trauma conceptual framework acknowledges the prevalence and potential adverse effects of traumatic events individually and collectively while also recognizing that trauma narratives are not uniform and trauma-related effects are not determinist. Within this study, this framework accounts for collective truth, while also recognizing variability and context in the lived experiences of students.

Eyeglasses

To provide a final description of why feminist and trauma theory and yoga philosophy and methodology conceptually fit, I provide an analogy of eyeglasses. Imagine a person wearing eyeglasses, examining trauma, with one missing lens. Their view and thus understanding would be distorted, as they only have one lens. Consequently, the seer would not fully grasp the entirety of the landscape nor its truth. With only the trauma "lens," one may see the effects of violence diagnostically and as such label individuals with psychophysiological disorders or illnesses without recognizing, or acting upon, the social structures which caused those ailments in the first place and/or intensified their impact. Conversely, with only the feminist "lens," the identification with, or collective prevalence of, violence and traumatization (e.g., symptomology) may be diminished. Thus, understanding the breadth of a social phenomenon and an individual's experience within that may not be as universally

acknowledged or validated. Therefore, when one sees through both lenses, they have a clearer, more accurate picture of the world around them. They are better able to recognize an individual's and collectives' unique and shared reality of violence and potential symptomology situated in a sociopolitical context.

Further, in the same vein, imagine addressing the aftermath of trauma from one lens, that of talk therapy (i.e., top-down processing), with one missing lens, the body (i.e., bottom-up processing). As Levine (2010) stated, the therapeutic approach would be limited; therefore, Levine proposes to begin with the "client's 'body speak'" and then move into more cerebral processing of one's emotion, perception, and cognition" (p. 45). This is especially important given the physiological changes and somatic symptoms that occur at the hands of traumatization, especially interpersonal victimization (Herman, 1992/2015; van der Kolk, 2015; van der Kolk et al., 1996/2007). To illustrate this point further, the body communicates by means of physical sensations originating from within one's body, for which awareness of the communication is known as interoception (Levine, 2010). Through yoga, specifically self-reflection and awareness, one can learn to cultivate and regulate the arousal of uncomfortable internal sensations, or the lack thereof (Emerson & Hopper, 2012; Levine, 2010). As described by Pagis (2009), "…embodied Eastern practices produce a self-reflexivity that moves beyond traditional talk therapy and becomes embodied self-reflexivity" (p. 28). Thus, comprehensive treatment requires a holistic approach in which restoration of one's biological rhythms, in tandem with the psychological and social components of the trauma, must be addressed (Herman, 1992/2015).

Theoretical Limitations

Philosophical Underpinnings

Questions may be raised as to whether the philosophical assumptions of empirical science regarding natural laws and regularities undergirding this study, and that allow for categorization of analytical categories and prediction of human behavior, converge theoretically and ethically with feminist theory and methodology (McCall, 2005). Empirical science is based on positivist epistemology that true scientific knowledge is objective; thus, it is founded on unbiased, apolitical, empirical observation and that subjectivity creates "noise" or error that can, and must, be minimized (McCall, 2005). However, postmodernist and poststructuralist critiques emphasized the idiocrasy in modern Western philosophy of science, specifically ignoring that science is deeply socially embedded, which influences background assumptions and systems of belief (e.g., historical, geographical, linguist, socio-political) that influence ontology and epistemology (Foucault, 1972; McCall, 2005; Sprague, 2016). Moreover, positivism was critiqued for its underlying assumptions, specifically the "lawlike, linear, reductionist, and predictable" fixed underpinnings, as opposed to the "more contingent, nonlinear, organic/holistic, chaotic" complexity which comprises our natural and social world (McCall, 2005).

Sprague (2016) discussed the need to recognize "knowers" of knowledge as humans and acknowledge their relation to knowledge development as it relates to their standpoint, including their position within socio-political structures, intersecting identities, power, bias, experiences, and space. Moreover, "standpoint epistemology argues that all knowledge is constructed from a specific position and that what a knower can see is shaped by the location from which that knower's inquiry begins" (Sprague,

2016, p. 47). As such, the social development of empirical science and knowledge building occurs from a position in which one recognizes the inherent power in their embodied role and the biases and assumptions in their understanding of the social world and how they study it. Feminist theory and methodology, particularly critical realists, addressed the aforementioned critiques of positivist epistemology and acknowledged and accepted the notions of cultural subjectivity that shape the construction of knowledge development.

Regarding application within this study, one could argue its contradictory epistemologies. Specifically, I employed positivist epistemology evidenced by theory-laden assumptions, deductive logic and reasoning, and the application of standardized measures and statistics. As such, social phenomena are defined, operationalized, and categorized into multiple dimensions as a means of comparison (McCall, 2005). However, I also employed feminist theory, which has historically critically examined and critiqued the nature for which academic scholarship has perpetuated sociopolitical normative categorical divisions and created particular identities of dominance or subordination. Category-based research is historically reductionist, homogeneous, and simplistic (e.g., binary), thus, this approach has, and continues to, perpetuate exclusion, bias, and inequalities (McCall, 2005). Further, intersectionality is a tenet of feminism in which there is a complex nature and lack of clear direction on how to quantitively examine the multiple and compounding dimensions and social relations that comprise individuals' lives and that call for unique methodological demands within science (McCall, 2005).

However, I contend that the use of these divergent epistemologies is also complementary. As outlined in McCall (2005), categorization can handle the complexity that intersectionality within feminist theory necessitates. The categorical approach can be applied to explicate the complexity among various social groups by acknowledging the inequality within and amongst them while also recognizing their fluidity instead of rigidity (McCall, 2005). Further, whether and where the complexity and intricacy of difference and inequalities lie, between and within relationships, are situated center stage through hypothesizing and analysis (McCall, 2005). As such, I aimed to include several analytical categories of multiple groups that were representative of the student participants' various identities and experiences, which were then cross-classified and analyzed with other categories. The specified categories within the analytical models included race, sexual orientation, class (contextualized as employment and health care service use), and experiences of IPV. However, despite my efforts to analyze the complexity of relationships within this study through comparative, multigroup examination, I could not on all accounts due to methodological and analytical restrictions of limited representation among groups and a comparatively small sample size. Thus, categories of gender and/or gender expression, race, and sexual orientation were collapsed more than preferred as a tradeoff of analysis, posing a major limitation within this study.

History of Exclusion

Another limitation of this study is the history of exclusion within the feminist movement, public and academic discourse, and scholarship; precisely, second-wave white feminism that was primarily based on middle-class, heterosexual

conceptualizations of enlightenment and liberation (Davis, 2014; Gingeri et al., 2010; hooks, 1984/2000). At the cross of race, class, and gender, the thoughts, voices, and ideas of Black, particularly lower class, women were subjugated at the hand of white women's agenda for "equality;" excluding and diminishing Black women's contribution, participation, and labor in white feminist organizations and their long-standing legacy of struggle (Collins, 1990; hooks, 1981/2000; Romero, 1991).

Moreover, within the sphere of gendered violence, feminism has historically centered on a gender binary and heteronormative theorization of man-to-woman violence (hooks, 1984/2000). Thus, this limitation has contributed to sexist stereotypes, simplified analyses of victimization and perpetration, and limited knowledge of gendered violence within relationships of same-sex, transgender, non-binary, non-conforming, and genderqueer identities and relationships (Gringeri et al., 2010; hooks, 1984/2000). Despite my intention to create an inclusionary research study, the study's sample primarily reflects the existing literature, specifically white, cisgender women who are heterosexual and employed.

Summary

Overall, trauma theory provides a lens for examining the prevalence and potential adverse outcomes of childhood and/or adulthood interpersonal violence victimization on the mental health, body connection, and educational welfare of young adult collegiate women within this study. Trauma theory also provides a path for examining women student's symptomology within a standardized medical framework, including post-traumatic stress, depression, anxiety, body connection, and academic well-being. However, notably, more current theorizations of trauma theory recognize traumatization

as a normative, adaptive, survival response in the face of an overwhelming threat(s) or stress(s) that, for some, results in residual traumatic effects.

Feminist theory situates the young adult collegiate women's individual and collective experiences of victimization, specifically ACEs and IPV, within the social and political backdrop in which their experiences were lived, traumatization may have manifested, and retraumatization may have occurred. Moreover, feminism provides a richer understanding of students' differing embodied identities and realities based on convergent systems of privilege and oppression, including intersecting systems of power, privilege, subordination, marginalization, and oppression (Crenshaw, 1991; Disch & Hawkesworth, 2016; Harris & Fallot, 2001; Worell, 2001).

Lastly, yoga, which is a practice and "tool" of skillful living (Iyengar, 1966/1979), attends to the individual and collective suffering for which trauma and feminist theory illuminate. Yoga is a practice of turning "inward" to examine the felt, lived experience in one's body, particularly an individual's internal bodily sensations, thoughts, and emotions. As such, yoga was theorized to aid in regulating individuals' trauma-related symptoms through self-awareness, meta-cognition, and physiological regulation. Further, given that a portion of students within this study practiced yoga, the practice was theorized to have implications on students' mental health, body connection, and academic well-being. Synergistically, trauma theory and feminist theory, along with yoga philosophy and methodology, provide a more holistic understanding of the etiology of trauma and a means of recovery and transformation that fill several gaps and critiques of each theory alone.

CHAPTER 4

METHODOLOGY

Research Design

This study utilized positivist methods; specifically, the application of a deductive approach, in which theoretical assumptions informed predetermined hypotheses and quantitative methodology to collect empirical data to test the speculated theory and hypotheses (Bhattacherjee, 2012; Park et al., 2020). These data were cross-sectional with observations at one point-in-time. As such, although subsequent analyses utilized predictive modeling techniques, causal assumptions cannot be made. Further, this study utilized survey methodology to collect numeric data to observe and measure the phenomena of interest, which was yoga, mental health symptoms, body connection, and academic well-being among women college students, aged 18-24 years.

Study Setting

This study took place at a university campus in the Southwest United States and was IRB approved. This location for data collection was chosen partly due to pre-existing relationships and institutional buy-in from the Arizona State University (ASU) Sexual and Relationship Violence Prevention Program (SRVP) and ASU Sun Devil Fitness Center (SDFC). See Table 1 for a description of the demographics of the main sub-sample within this study versus ASU at large (University Office of Institutional Analysis, 2021). Further, within the past 12 months, a reported 13.6% of female ASU students and 9.8% of gender non-binary students, compared to 6.8% of male students, experienced emotional abuse, physical abuse, and/or sexual abuse by their intimate partner (ACHA, 2019). Additionally, 9.5% of female ASU students and 9.8% of gender non-binary

students, compared to 2.2% male students, reported experiencing stalking by their partner (ACHA, 2019).

Table 1

Demographic Characteristics — Study's Main Sub-Sample Versus ASU

	Main Sub-Sample (n = 93)		ASU (*n* = 135,729) [a]	
Characteristic	*n*	%	*n*	%
Socio-demographics				
Academic Level				
Undergraduate	86	92.5	107,425	79.1
Graduate	7	7.5	28,304	20.9
Gender				
Cisgender woman / Female	80	86.0	75,075	55.3
Male	—	—	60,654	44.7
Another gender	8	8.6	—	—
Missing	5	5.4	—	—
Race and Ethnicity				
Asian	8	8.6	8,869	6.5
Hispanic or Latinx	12	12.9	30,221	22.3
White	63	67.7	65,992	48.6
Another race and ethnicity	10	10.8	30,647	22.6

Note. ASU = Arizona State University
[a] Data pulled from: https://uoia.asu.edu/sites/default/files/asu_facts_at_a_glance_-_fall_2021.pdf

Sampling Strategy

Purposive sampling was utilized, which is a nonrandom technique based on a pre-selective identification of individuals or groups of individuals that may lend information and experience to the phenomena of study and who may be able and interested in participating (Etikan et al., 2016). For example, I collaborated with the ASU Sexual and Relationship Violence Prevention Program and ASU Sun Devil Fitness Center as a means

of reaching the target population of interest (all sampling strategies are discussed below in recruitment). Inclusion criteria included currently enrolled (part-time or full-time) ASU women college students who were 18 to 24 years of age.[9] The exclusion criteria included not currently enrolled (part-time or full-time) ASU students, not women, and individuals under 18 or over 24 years of age.

While I still aimed to recruit students with interpersonal violence exposure (i.e., IPV, ACEs), yoga participation, and non-yoga participation, these factors were not included in the inclusion criteria for more flexibility within the sample population and to avoid excessively narrowing the sampling pool of eligible students on the ASU campus. This was especially important given the potential implications of COVID-19 on IPV exposure (e.g., displacement of students from the ASU campus) and yoga participation (e.g., closures of gyms and yoga studios) on students' eligibility. I analytically parsed out the sub-population[10] of interest to answer this study's research questions. Additionally, more variability within this study's sample, overall, allowed for future analyses on varied sub-populations.

Recruitment

This study was reviewed, and approved, by a committee affiliated with the Office of the University Provost and the Institutional Review Board prior to recruitment. Participants were recruited from February to March 2021, via flyers posted and disseminated throughout the university campus (i.e., on campus message boards, within

[9] Anyone who answered "yes" to the eligibility question "are you a woman?"

[10] Participants who reported "yes" to *ever* being in a relationship and "yes" to practicing yoga in the past year.

classrooms by faculty and staff) and advertised throughout the ASU Sexual and Relationship Violence Prevention Office, the ASU Office of Gender-based Violence, the ASU Thrive Lab, and the ASU Sun Devil Fitness Center. Efforts were made to recruit individuals who have not been predominately represented in the research thus far, including women with diverse gender identities, sexual orientations, race and ethnicities, and international students. Specifically, efforts were made to connect with and disseminate recruitment information to ASU student groups/clubs, digests, newsletters, and listservs (e.g., Black African Coalition, Coalition of International Students, Barrett LGBT+ Club, sorority life, psychology weekly) that were associated with the above populations. Recruitment material was mainly disseminated through email and included the study's purpose, eligibility, and survey details. Attached to the email was a recruitment communication template (see Appendix A) and four flyers that individuals could use to share the study information (see Appendix B).

My goal was to recruit a total of 300 participants. This recruitment goal was guided by an a priori power analysis, which indicated a minimum sample of 90 students was needed to find a true effect (see Appendix C). Further, the recruitment goal considered potential missing data and a smaller effect size; thus, a sample of 300 participants was deemed appropriate. A total of 289 students responded to the screening questionnaire and completed the eligibility questions (response rate of 96.3%), in which 248 students consented to the study (85.8% continuation rate from the screening questionnaire; see Appendix I). I stopped data collection 11 participants shy of my goal, as there was a natural pause in students responding to the screening and eligibility form.

Data Collection Procedures and Instrumentation

Quantitative data were collected through a survey that was made up of primarily standardized instruments. Quantitative methods were utilized to observe and numerically measure the phenomena or social condition of interest (i.e., yoga participation, IPV, ACES, mental health symptoms, body connection, academic well-being), rank and categorize information (e.g., participant attributes), as well as examine, identify, and quantify patterns and associations between variables (Kirk, 2012; Moser & Kalton, 2017). As a means of collecting data, recruitment material included a URL, in which students self-referred to the screening and consent form hosted within Qualtrics (see Appendix D).

The online screening and consent form was separated from the survey questionnaire and incentive forms. First, students completed the screening questions to see if they were eligible for the study (i.e., 18-24 years of age, a woman, part-time or full-time student). Ineligible students were taken to the end of the form and not permitted to continue. Eligible students were directed to review the online consent section which included information on the study's purpose, risks and potential benefits, their rights as participants, and the primary and co-investigator contact information. The students were asked whether they agreed or disagreed with continuing in the study. If students did not agree to participate in the study, they were not permitted to continue. Students who clicked "continue with this study" thereby gave their permission to take part in the research and agreed that the information in the consent document, and any other written information, was accurately explained to, and understood by, them. From there, students were automatically sent (via skip logic) to a separate URL and prompted to complete the one-time survey questionnaire (see Appendix E).

The self-report survey (see Appendix E) was administered online through Qualtrics. Participants had the option to use a paper copy of the instrument, or other options if needed, by contacting the study team. Students were prompted to create a unique participant ID based on the following criteria: (a) first letter of their birth month, (b) first letter of the street name they currently lived on, (c) letter of their middle initial (if they did not have one, they were instructed to enter "X"), (d) number of siblings, and (e) the last number of their phone number. Students created a unique identifier because prior to administering incentives (i.e., gift card), participants' IDs from the incentive forms were cross-referenced with participants' IDs from the survey questionnaires to confirm survey completion. After survey completion, students were asked whether they wanted to continue to the next section to receive a $5 incentive. Students who did not want an incentive were taken to the end of the survey. Students who did want their incentive then transitioned to a separate online Qualtrics incentive form (see Appendix F) to enter a confidential email address, for compensation purposes, and asked whether they wanted to be contacted by the study team for future research opportunities. If they wanted to be contacted for further research, they were asked to enter their email address. All students who interacted with this study were given a list of on-and-off campus safety and health-related resources (see Appendix G).

Of the participants that received an incentive, a $5 gift card was emailed to them once their survey completion was confirmed. The gift cards were administered through Tango Card, which is a platform to digitally send and track gift card distribution, and in which students choose from various vendors (e.g., Target, Amazon, iTunes). The

incentive amount was considered nominal and reasonable based on the average, estimated amount of time students took to complete the survey (20 minutes).

Two survey submissions appeared suspicious (i.e., flagged as suspicious within Qualtrics, survey was completed in under 5 minutes, information looked very similar to other survey submissions). As such, before emailing the gift card incentive, I verified that the participant was not a bot (see Appendix H). However, issues of anonymity were taken into consideration, and so I first contacted the IRB to approve procedures and language. Then, I contacted the participant by email using the email address they provided for the gift card receipt and informed the participant that I was confirming their participation in my study on students' health and well-being. Given that the students did not respond and confirm their participation, the gift cards were not emailed to them. Of the 235 completed responses, 207 gift cards were administered, while 26 gift cards were not administered. Participants did not receive their gift cards because they did not provide their email address on the incentive form (n = 2), they did not complete the form all together (n = 22), or they were deemed suspicious and did not return the email confirming their participation (n = 2).

Lastly, to aid in the replicability and transparency of findings, standardization and documentation procedures were implemented, including recruitment of participants and survey implementation. Study processes and standardized procedures not reported herein are available upon request.

Measures

This section outlines the survey items and standardized measures (see Table 2) utilized within this study to capture the phenomena of interest. Survey items and

measures are presented in the order in which they appeared in the questionnaire. Internal consistency reliability was assessed with coefficient alpha, which is often utilized to assess for an appropriate number of measurement items to adequately capture a construct (Salkind, 2010). Further, coefficient alpha for each of the study's included measures/constructs is reported on throughout this section and compared to the standardized measure/construct's internal consistency reliability as reported in the source reference, as well as among collegiate populations, when available.

Socio-demographics. Prior literature that examined yoga among individuals with histories of interpersonal violence victimization, as well as literature on yoga broadly, informed the inclusion of socio-demographic variables (Atkinson & Permuth-Levine, 2009; Berila et al., 2016; Clark et al., 2014; Crews et al., 2016; Gulden & Jennings, 2016; Kemppainen et al., 2018; Murphy et al., 2019; Nguyen-Feng, Morrissette, et al., 2019; Ong et al., 2019; Rhodes, 2015; Sohl et al., 2011; Stevens & McLeod, 2019; West et al., 2017). At the beginning of the survey, students were prompted to answer a series of demographic questions and were consistently able to enter text if none of the predetermined response options applied to them. Students answered questions related to their age, religion or belief system (World Religion Database, 2020), employment, and main continent in which they primarily lived.

Following the American College Health Association (ACHA), National College Health Assessment III (2020), several single-item questions were included to analyze participants' socio-demographic background. Two questions were taken verbatim from the ACHA, including sex assigned at birth and enrollment status. Five questions were taken from the ACHA and revised for simplicity and to expand on inclusivity and

representation of the variable attributes; these included racial or ethnic background (ACHA, 2020; Jensen, 2021), gender and/or gender expression (Human Rights Campaign, n.d.; Killermann, 2017), sexual orientation (Human Rights Campaign, n.d.; Killermann, 2017), current year in school, and current type of residence. The analytical attributes for age and gender followed the recruitment criteria for a randomized controlled trial that examined the efficacy of an online IPV safety decision aid, MyPlan, for college women (Glass et al., 2015). Moreover, the criterion for age partially reflected that of a study among a sample of young adults, ages 18-26 years, that examined yoga practice and associations with stress levels and experiences of adverse advents (Neumark-Sztainer et al., 2020).

Students were also asked questions about current or former intimate relationships. For the purposes of this study, an intimate relationship/partner referred to a current or former/ex dating relationship (e.g., girlfriend, boyfriend, partner), sexual partner, and/or spouse. If a participant was in a polyamorous or in a non-monogamous relationship, they were asked to answer all questions as related to only one relationship, preferably their primary relationship. Subsequently, students were asked whether they have been in an intimate relationship ever (*no* or *yes*). If they answered "yes" to having ever been in an intimate relationship, they were asked whether they were in an intimate relationship in the past 12 months (*no* or *yes*). Subsequently, among students who have ever been in an intimate relationship, questions were asked to how they would classify their current or most recent intimate relationship (e.g., dating, ex-dating), the gender identity of their current or most recent intimate partner, as well as relationship duration (e.g., one month, more than a month but less than 3 months).

Health Care Service Use. Slightly modified from the ACHA, two questions were incorporated into this instrument related to participants' lifetime and past 12 months mental health service use (ACHA, 2020). An example item of mental health service use was "have you ever received psychological or mental health services (e.g., therapy, psychotherapy, counseling, psychiatry)?" (ACHA, 2020, p. 47). Answers to the questions were dichotomous (*no* or *yes*). If the respondent answered "yes" to receiving psychological or mental health services within the past 12 months, the follow-up question assessed for on-and-off-campus service utilization (e.g., campus health and/or counseling center).

Yoga Participation. Characteristics of yoga participation were partially guided by the Essential Properties of Yoga Questionnaire (EPYQ) (Park et al., 2018) or I created the item. As such, students were asked eighteen questions (or less depending upon skip logic items) related to their experiences with yoga. Items assessed participants yoga participation ever (*no* or *yes*). If they answered "yes" to having ever practiced yoga, they were asked whether they practiced yoga in the past year (*no* or *yes*). If they answered "yes" to having practiced yoga in the past year, they were asked whether they practiced yoga in the past six months (*no* or *yes*). If they answered "yes" to practicing yoga in the past six months, they were subsequently asked about their frequency of yoga practice over the past six months (e.g., less than once a month, once a month, weekly). If participants positively endorsed practicing yoga weekly within the past six months, they were asked how many minutes or hours they practiced yoga per week on average (e.g., less than 30 minutes per week, 30 minutes to less than one hour per week).

Among the participants who ever practiced yoga, students were asked about their duration of yoga practice (e.g., once a month or less) and whether COVID-19 impacted how frequently they did yoga (*no* or *yes*), and, if so, in what ways (e.g., I practice less frequently). Questions also included what type(s)/style(s) of yoga participants typically practiced (e.g., Ashtanga, trauma-sensitive or trauma-informed), the methods in which they typically used for facilitation/instruction (e.g., in person by an instructor), whether COVID-19 impacted their typical methods of yoga practice facilitation/instruction (*no* or *yes*), and, if so, in what ways (e.g., I practice less yoga, or no longer practice yoga, in person by an instructor). Students were also asked about where they typically practiced yoga (e.g., university/campus studio or classroom), whether COVID-19 impacted where they typically practiced yoga (*no* or *yes*) and, if so, in what ways (e.g., the space/facility where I typically practice yoga temporarily or permanently closed). In relation to participants' yoga practice, students were asked whether they perceived themselves as a *beginner*, *intermediate*, *advanced*, or *none of the above*, with no definitions provided but rather based on their self-perception. One question with predetermined choices was added to assess students' experiences and feelings around their yoga practice (e.g., negative first experience with yoga and so I never returned to a class/session). Lastly, among participants who never participated in yoga, one question was asked to assess why they never practiced (e.g., just not interested in doing yoga).

One of the main variables of interest in the multivariate linear regression analyses was yoga participation versus non-yoga participation. The variable's attributes were partially guided by the criteria for yoga participation by Neumark-Sztainer and colleagues (2018 & 2020) who examined yoga participation among young adults. In this

study, yoga participation was defined as respondents who engaged in yoga, on average, at least 30 minutes or more per week in the past six months. The other portion of the sub-sample were students who did not participate in yoga, in that they did not regularly practice (i.e., less than 30 minutes, on average, per week in the past six months). Although prior studies examined yoga participation within the past 12 months (Birdee et al., 2008; Neumark-Sztainer, 2018, 2020), or without a timeframe applied (Vedder, 2011), a shorter time parameter was deemed essential for the analyses, as the objective was to examine associations with mental health symptoms (i.e., PTSD, depression, anxiety), body connection, and academic well-being associated with yoga participation versus non-participation. Thus, more recent, and frequent, yoga dosage was thought to increase the likelihood of finding a significant relationship between variables and a moderate effect.

Prior Trauma History. To examine prior trauma history, eight (of the 17) items from the Adverse Childhood Experiences (ACEs) questionnaire were used (Felitti et al., 1998) to identify three categories of previous emotional, physical, and/or sexual abuse during students' first 18 years of life. Two items comprised the psychological abuse category, two items comprised the physical abuse category, and four items comprised the sexual abuse category, totaling eight items or questions. Responses were dichotomous, *no* and *yes*. Exposure to prior abuse was considered to have occurred if a respondent answered "yes*"* to at least one of the items (or questions) within that category (Felitti et al., 1998).

Traditionally, the seven ACE categories were summed (Felitti et al., 1998), for which, in this study, three (out of the seven) categories were added to create a sum score

ranging from zero to three. However, I also created an additional sum score based on each item within the three categories, for which scores ranged from zero to eight. Thus, more variability (or spread) of frequencies within the variable was observed. This sum score was utilized within research questions two through four.

An example item was, “did a parent or other adult in the household often or very often act in a way that made you afraid that you would be physically hurt?” (Felitti et al., 1998, p. 248). The ACE questionnaire was utilized among a sample of young adult college students with histories of IPV (M = 20.05 years old, SD = 2.5) and demonstrated acceptable internal consistency reliability (a = .70; Nikulina et al., 2021). To reduce participant burden, this study did not use all the instrument’s items; thus, the internal consistency will vary from prior and future literature. Within this study, internal consistency reliability of the sum score of the eight ACE items was assessed, compared to the prior literature, and deemed acceptable (study a = .74) and on par with adjacent literature (Nikulina et al., 2021).

Physical and Emotional Abuse, Harassment, and Severe Combined Abuse. The validated, self-report, revised instrument of the Composite Abuse Scale (CAS) was utilized to assess for IPV exposure (Hegarty & Valpied, 2013; Hegarty et al., 1999, 2005). The CAS comprised 30 items, with four standardized subscales, that measured and quantified varying types of intimate partner abuse. These dimensions included: physical abuse (seven items), harassment (four items), emotional abuse (11 items), and severe combined abuse (eight items). For this study, the timeframe was adapted to a six-month period (from a 12-month period on the original instrument), and individuals were asked whether these behaviors occurred on a six-point Likert scale ranging from *never* to *daily*.

The IPV timeframe of six-months was consistent with prior research (Glass et al., 2015) and followed the survey item on yoga participation included within the analyses (i.e., within the past six months). Item scores ranged from zero to five, with a total possible score of zero to 150 (severe combined abuse, zero to 40; physical abuse, zero to 35; emotional abuse, zero to 55; harassment, zero to 20). Per the CAS manual (Hegarty & Valpied, 2013), to maximize true positives and minimize false positives, recommended cut-off scores for the total score (score of three or less) and each subscale score (i.e., physical abuse, score of one; emotional abuse, score of three or less; harassment, score of 2 or less; severe combined abused, score of one) were utilized. Given the low means for each IPV type, variables were dichotomized into a score of one (experienced that type of abuse) or zero (did not experience that type of abuse). An example item includes, "[my partner] pushed, grabbed or shoved me."

A primary advantage of the CAS was the measure's ability to evaluate varying types and severity of abuse. Also, as evidenced in prior literature (Hegarty et al., 1999) internal consistency reliability was high for the overall scale ($\alpha = 0.85$) and among the majority of subscales ($\alpha > 0.90$). While the measure was developed and refined among clinical samples (Hegarty et al., 2004; Hegarty et al., 1999; Hegarty et al., 2005), the measure was also used with college women who reported IPV experiences, some of whom were aged 18-24 years (Edwards, Dardis, et al., 2015; Edwards, Gidycz, et al., 2015; Glass et al., 2015, 2022; Wolford-Clevenger et al., 2016). Among a college student sample, internal consistency reliability was adequate (Harassment, $a = .68$; Physical Abuse, $a = .86$; Emotional Abuse, $a = .89$; a Cronbach's alpha for Combined Abuse was not reported) and reliability increased to a sufficient level ($a = .70$) on the harassment

subscale when one item was removed (i.e., "harassed me at work") (Wolford-Clevenger et al., 2016). Additionally, among a sample of college women, internal consistency reliability of the CAS composite score was high (a = .93; Glass et al., 2022).

Given findings from Wolford-Clevenger and colleagues (2016), further adaptations were made to the instrument for item-congruence with this population, as well as to minimize retraumatization or harsh language. These revisions included (a) the sexual abuse items were changed from "raped me" and "tried to rape me" to "forced me to have sex (vaginal, anal, oral)," and "tried to force me to have sex (vaginal, anal, oral)," (b) "hung around outside my house" to "hung around outside my house, dorm, class, or place of residence when I did not want them to," (c) "harassed me at work" to "harassed me at work, class, or extra-curricular activities," (d) "became upset if dinner/housework was not done when they thought it should be," to "became upset if school work/dinner/housework was not done when they thought it should be," (e) "followed me" to "followed me when I did not want them to," (f) "tried to convince my family or children that I was crazy" to "tried to convince my friends, family, or children that I was crazy," and (g) "refused to let me work outside of the home" to "refused to let me work." Within this study, the composite score (study a = .96) and the subscales physical abuse (study a = .79), harassment (study a = .90), emotional (study a = .96), and severe combined abuse (study a = .75) demonstrated adequate to high internal consistency reliability and holds up strongly compared to prior literature (Glass et al., 2022; Hegarty et al., 1999; Wolford-Clevenger et al., 2016).

Digital Dating Abuse. Reed and colleagues' (2021) modified version of the original DDA instrument (Reed et al., 2016) was utilized and examined current or most

recent constructs of unhealthy digital patterned behavior made up of three sub-scales (sexual coercion, direct aggression, and monitoring/control) (Reed et al., 2021), which was used among undergraduate college students (Reed et al., 2016). Questions were answered on a 4-point Likert scale, ranging from *never* to *very often* (Reed et al., 2021). Item scores ranged from zero to three, with a total possible score of zero to 48 (digital sexual abuse, zero to 15; digital direct aggression, zero to 12; digital monitoring and control, zero to 21). For this study, the 18 items were utilized to quantify DDA victimization (perpetration was not measured). An example item was, "using the Internet or a cell phone, my current/most recent partner sent a sexual/naked photo that I did not want/ask for" (Reed et al., 2021, p. 17). The instrument demonstrated acceptable internal consistency reliability across the three victimization sub-scales (a = 0.70 – 0.83). Within this study, the composite score (study a = .86) and the subscales digital sexual abuse (study a = .62), digital direct aggression (study a = .42; item 9 was removed due to zero frequency of the value one), and digital monitoring and control (study a = .86) demonstrated weak to adequate internal consistency reliability.

IPV-Related Impact and Contextualization. Follow-up questions were added to each of the DDA measurement items to examine the degree to which the abusive behaviors upset the individual (Reed et al., 2021). This item, "thinking about the last time this happened, how much did it upset you?" was measured on a 5-point Likert scale, ranging from *not at all* to *a lot* with the option to choose *not applicable*. The inclusion of this item was essential to contextualize the implications of abusive behaviors and to

recognize that the impact of abuse experiences may vary among individuals (Hegarty & Valpied, 2013).

One item was incorporated to assess for experiences in which a participant and their intimate partner may have engaged in BDSM practices, specifically bondage, bondage and discipline, domination/dominance and submission, and sadism and masochism. In this study, BDSM referred to experiences (e.g., sexual) where free-willed consent between individuals was present (Wismeijer & van Assen, 2013). This item was included, as prior research has pointed to the potential misidentification of abuse scales, (i.e., false positives), such as instruments measuring IPV, among individuals who engaged in BDSM practices (Comber, 2008). However, prior literature also demonstrated the occurrence of abusive BDSM intimate relationships (Comber, 2008; Pitagora, 2016), and discussed the differences between consensual BDSM and assault (e.g., sexual victimization), such as lack of transparent communication, isolation, and continued disregard of one's safe-word (Jozifkova, 2013; Pitagora, 2016; Sorin, 2018)

In this study, the inclusion of the one item that inquired about the use of BSDM practices within an intimate relationship that overlapped with the IPV measurement items was largely inadequate. However, the item was included for exploratory analyses to begin to better understand this phenomenon. Thus, participants were asked whether any of the activities that were inquired about in the previous section (referring to the CAS and DDA), between them and their intimate partner (current/ex), was part of BDSM, including, but not limited, to: hitting, biting, slapping, putting foreign objects in vagina/anus, humiliating partner or being humiliated by partner, and/or using pain. This item was measured on a 4-point Likert scale, ranging from *none of the activities* to *all of*

the activities, with the option to choose *other, please specify*. Although one item was included in the survey instrument to inquire about BDSM, this item was not considered in the statistical analysis as I felt that assessment would require a more in-depth analysis.

Post-traumatic Stress Disorder Symptoms. The post-traumatic stress disorder (PTSD) checklist for civilians (PCL-C; Weathers et al. 2013) comprised 17 items and measured symptomology of PTSD symptoms (i.e., how much a person is bothered by a symptom) and generalized traumatic and/or stressful events or experiences in the general population without attributing symptoms to a specific event(s) (Briere & Scott, 2014; Conybeare et al., 2012; Weathers et al., 1994). PTSD symptoms and items were developed based on the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), and are described as re-experiencing, avoidance of stimuli, increased arousal of symptoms, and distress or impairment (e.g., social, occupational) (Substance Abuse and Mental Health Services Administration [SAMSHA], 2009). The PCL-C instrument can be utilized to examine one's overall frequency of PTSD symptoms, including to create a total symptom severity score, and to determine clinical levels of client distress (i.e., PTSD diagnosis) (Briere & Scott, 2015; Weathers et al., 2013).

Questions were answered on a 5-point Likert scale, ranging from *not at all* to *extremely*. Item scores ranged from one to five, with a total possible score of 17 to 85. Although not applied within this study, a clinical cutoff score of 45 was specified in prior research among undergraduate samples (see Adkins et al., 2008 and Hoyt & Yeater, 2010). This instrument was one of the more commonly utilized measures in research examining yoga and PTSD (Cramer et al., 2018). The instrument has demonstrated strong internal consistency reliability (α = 0.89 to 0.94; Adkins et al., 2008; Blanchard et al.,

1996; Conybeare et al., 2012; Weathers et al., 2013), and has been utilized among university populations, including those with traumatic exposure (Adkins et al., 2008; Hoyt & Yeater, 2010). Within this study, the composite score (study a = .95) demonstrated high internal consistency reliability and holds up strongly compared to prior literature (Blanchard et al., 1996; Conybeare et al., 2012; Weathers et al., 2013).

Depression Symptoms. The Center for Epidemiological Studies Depression Scale (CESD) (Radloff, 1977) was utilized to measure symptoms of depression among a general population of adults (Nezu et al., 2000). The CESD is a widely applied self-report instrument, encompassed 20 total items, and was meant to be utilized for research purposes. The revised, validated version of the CESD, the CESD-R (Eaton et al., 2004), was utilized within this study and measured depressive symptoms in nine various groups, for which the measure can also be used to screen for depressive disorder, as defined by the American Psychiatric Association Diagnostic and Statistical manual (5th edition) (APA, 2013). These nine areas included: sadness (dysphoria), loss of interest (anhedonia), appetite, sleep, thinking/concentrating, guilt (worthlessness), tired (fatigue), movement (agitation), and suicidal ideation (The Center for Innovative Public Health Research, n.d.). Questions were answered on a 5-point Likert scale, ranging from *not at all or less than one day* to *nearly every day for two weeks* and can be calculated as a sum score and utilized to determine symptom categories, including subthreshold depression symptoms and clinical versus non-clinical threshold. Items scores ranged from zero to four, with a total possible score of zero to 80. A sum score of at least 16 (without meeting criteria for other symptom categories of major depressive episode) denoted subthreshold depression symptoms.

This CESD-R was utilized among a sample of college women (18-24 years of age) with experiences of IPV (Glass et al., 2015, 2022) and the CESD has been examined among other similar populations of individuals with experiences of IPV (Al-Modallal, 2016; Cooper et al., 2017; Grest et al., 2018; Fletcher, 2010). The CESD-R and the CESD have shown to be highly correlated (Eaton et al., 2004; Radloff, 1977; Rollins et al., 2012). The CESD-R demonstrated strong internal consistency reliability (a = 0.92; Van Dam & Earleywine, 2011). Moreover, among a sample of college women with experiences of IPV, the CESD-R demonstrated strong internal consistency reliability (a = .95) (Glass et al., 2022). Within this study, the composite score (study a = .95) demonstrated high internal consistency reliability and holds up strongly compared to prior literature (Glass et al., 2022; Van Dam & Earleywine, 2011).

Generalized Anxiety Disorder Symptoms. The Generalized Anxiety Disorder 7-item (GAD-7) (Spitzer et al., 2006) scale was utilized within this study and measured presenting psychological and physiological symptoms of generalized anxiety disorder, including occurrence, frequency, and life interference (Schaefer et al., 2018; Spitzer et al., 2006).The GAD-7 is a brief self-report instrument and encompassed: excessive anxiety and worry (apprehensive expectation), difficultly controlling the worry, restlessness or feeling "keyed up," easily fatigued, difficultly concentrating or the mind "going blank," irritability, muscle tension, sleep disturbance, and distress or impairment (e.g., social or occupational) (Barton et al., 2014). Questions were answered on a 4-point Likert scale, and the rating dimension for frequency varied from *not at all* to *nearly every day*. Item scores ranged from zero to three, with a total possible score of zero to 21. Additionally, the one item that assessed life interference ranged from *not difficult at all* to

extremely difficult with a possible score of zero to three. Sum scores of five, 10, and 15 were considered to represent mild, moderate, and severe levels of anxiety, respectively. An example item was, "over the last two weeks, how often have you been bothered by the following problems: feeling nervous, anxious, or on edge?" (Spitzer et al., 2006, p. 1094). The GAD-7 was used and validated among community and college samples (Byrd-Bredbenner et al., 2020; Godoy et at., 2021, data college in Brazil) and among those with violence exposure, including IPV (Assari & Lankarani, 2018; Holt et al., 2017; Schaefer et al., 2018). The measure demonstrated good to strong internal consistency validity (a = .79 - .92) (Byrd-Bredbenner et al., 2020; Godoy et al., 2021; Schaefer et al., 2018; Spitzer et al., 2006). Within this study, the composite score (study a = .93) demonstrated high internal consistency reliability and holds up strongly compared to prior literature (Schaefer et al., 2018; Spitzer et al., 2006).

Body Connection. The Scale of Body Connection (SBC) comprised 20 items and is a validated instrument that measured individuals' perceptions of bodily awareness and bodily dissociation (Price & Thompson, 2007). The creation of the SBC was intended for mind-body intervention research (Price & Thompson, 2007). The SBC included two subscales — body awareness (12-items) and body dissociation (eight-items). Body awareness was conceptualized as conscious attention to inner, sensory experiences or prompts signaling one's bodily state (e.g., tension, peacefulness) (Price et al., 2007). An example item that endorsed body awareness was, "I notice that my breathing becomes shallow when I'm nervous" (Price, n.d., p. 3; Price & Thompson, 2007). Appositionally, bodily dissociation was conceptualized as separation from ones' sensory experiences prompting disconnection from one's bodily state (e.g., distracting self from feelings of

discomfort; Price et al., 2007). An example item that endorsed body dissociation was "I feel separated from my body" (Price, n.d., p. 3; Price & Thompson, 2007). The rating dimension was a 5-point Likert scale and responses ranged from *not at all* to *all of the time*. Item scores ranged from zero to four, with a total possible score of zero to 80 (body awareness, zero to 48; body dissociation, zero to 32).

The SBC instrument was administered to undergraduate students in the U.S. with and without trauma exposure (e.g., childhood physical abuse, sexual abuse; sexual assault as an adult) and implemented among female veterans with PTSD and chronic pain (Price et al., 2007). The subscales can be summed to measure body awareness and body dissociation, or the full scale can be summed into a composite score to measure overall body connection. This scale demonstrated sufficient psychometric properties as determined by content validity by panel experts, discriminant validity on the dissociation subscale (among individuals with one or more physical traumas versus none), construct validity, and internal consistency reliability (body awareness, $a = 0.83$; body dissociation, $a = 0.78$) (Price & Thompson, 2007). Within this study, the composite score (study $a = .73$) and the subscales body awareness (study $a = .87$) and body dissociation (study $a = .81$) demonstrated adequate internal consistency reliability and hold strongly compared to prior literature (Price & Thompson, 2007)

Academic Well-being. Students' academic well-being, conceptualized as their academic performance and the overall quality of their academic experience, was assessed. Specifically, students' self-reported grade point average (GPA) was assessed on a 4.0 scale, ranging from zero to four and above. The College Student Subjective Wellbeing Questionnaire (CSSWQ), a 15-item instrument, was also utilized (Renshaw &

Bolognino, 2016). The CSSWQ measured students' perceptions of their academic well-being and behavior and comprised four subscales (each four items) — academic efficacy, academic satisfaction, school connectedness, and college gratitude. The revised version of the instrument was utilized (Renshaw, 2018). Items were scored on a 7-point Likert scale, ranging from *strongly disagree* to *strongly agree*. Item scores ranged from one to seven, with a total possible score of 16 to 112 (Renshaw, 2018). An example item included, "I am happy with how I've done in my classes" (Renshaw, 2018, p. 144). This instrument has demonstrated adequate internal consistency reliability ($\alpha = 0.73$) (Renshaw & Bolognino, 2016; Renshaw, 2018). Within this study, the composite score (study $\alpha = 0.92$) demonstrated strong internal consistency reliability and exceeded that of prior literature (Renshaw & Bolognino, 2016; Renshaw, 2018).

Table 2

Standardized Study Measures (n = 8)

Measure (Source)	Total Items and Sub-scales	Study Internal Consistency	Example Item	Rating Dimensions	Timeframe
Adverse Childhood Experiences (ACEs) (Felitti et al., 1998) [a]	• 8 items total (of 17) • Psychological, physical, sexual abuse (three of the seven categories)	• *Composite, a = .74*	"Did a parent or other adult in the household often or very often act in a way that made you afraid that you would be physically hurt?"	Dichotomous *no* or *yes*	First 18 years of life
Composite Abuse Scale (CAS) (Hegarty & Valpied, 2013)	• 30 items total • Physical abuse, harassment, emotional abuse, and severe combined abuse	• Composite, *a* = .96 • Physical, *a* = .79 • Harassment, *a* = .90 • Emotional, *a* = .96 • Severe, *a* = .75	"[my partner] hit or tried to hit me with something"	6-point Likert scale ranging from *never* to *daily*	6 months
Digital Dating Abuse (DDA) (Reed et al., 2016, 2021)	• 18 items total (of 38) assessing DDA victimization • Sexual coercion, direct aggression, and monitoring/control	• Composite, *a* = .86 • Sexual, *a* = .62 • Aggression (item 9 removed), *a* = .42 • Monitoring/control, *a* = .86	"[my partner] threatened to distribute an embarrassing/sexually suggestive image of me"	4-point Likert scale ranging from *never* to *very often*	6 months
PCL-C (Weathers et al., 1994, 2013)	• 17 items total	• *Composite, a* = .95	"Repeated, disturbing memories, thoughts, or images of a stressful experience from the past"	5-point Likert scale ranging from *not at all* to *extremely*	Past month

Table 2

Standardized Study Measures (n = 8)

Center for Epidemiologic Studies Scale, Revised (CESD- R) (Eaton et al., 2004)	• 20 items totals	• *Composite, a = .95*	"I could not shake off the blues"	5-point Likert scale ranging from *not at all or less than one day* to *nearly every day for 2 weeks*	Last 2 weeks
Generalized Anxiety Disorder 7-item (GAD-7) (Spitzer et al., 2006)	• 7 items total	• *Composite, a* = .93	"Feeling nervous, anxious, or on edge"	4-point Likert scale, frequency varies from *not at all* to *nearly every day*, and life interference ranges from *not difficult at all* to *extremely difficult*	Last 2 weeks
The Scale of Body Connection (SBC) (Price, n.d.; Price & Thompson, 2007)	• 20 items total • Body awareness, body dissociation	• Composite, *a* = .73 • Awareness, *a* = .87 • Dissociation, *a* = .81	"I notice that my breathing becomes shallow when I'm nervous"	5-point Likert scale, ranging from *not at all* to *all of the time*	General feelings

Table 2

Standardized Study Measures (n = 8)

The College Student Subjective Wellbeing Questionnaire (CSSWQ) (Renshaw, 2018; Renshaw & Bolognino, 2016)	• 15 items total Academic efficacy, academic satisfaction, school connectedness, and college gratitude	• *Composite*, α = 0.92	"I am happy with how I've done in my classes"	7-point Likert scale, ranging from *strongly disagree* to *strongly agree*	Overall post-secondary academic experiences

[a] Only three (i.e., emotional, physical, and sexual abuse) categories were utilized out of the seven total categories. Further, a sum score was created based on each item within the three categories, for which scores ranged from zero to eight.

Human Participants' Protection

Precautions were taken to protect participants' privacy and safety. Following ASU IRB standards, participant data were saved on a password protected device, along with password protected accounts including Qualtrics and ASU cloud storage. Participant data from the survey questionnaire (containing only their participant ID) were downloaded from Qualtrics and uploaded to software packages used for statistical analysis (i.e., SPSS, R, Excel). Moreover, the distribution of incentives and any associated identifying information gathered to facilitate gift card tracking was stored separately.

Participants were informed of all aspects of the research study that may have influenced their participation, including potential adverse reactions and/or benefits. Moreover, at the beginning of the survey, participants were informed that the survey contained sensitive information and should be completed in a safe and private space and on a safe and private device. To support the well-being of participants, and to mitigate against adverse reactions, a resource list of on-and-off campus safety and health-related resources was provided to all students throughout the survey and at the end of their survey completion. Throughout the survey, participants were informed that the questions may have brought up uncomfortable thoughts, emotions, and/or physical sensations. They were encouraged to take a break, get a drink of water, and/or stretch. Participants were also reminded that if they were so uncomfortable or distressed that they could not continue, that they could stop the survey in its entirety. Moreover, throughout the survey, participants were provided contact information for ASU counseling and a 24-hour ASU-dedicated crisis hotline. Consequently, a potential benefit of this study may have included

an introduction to resources on and off campus. To further safeguard students, this study was referred to as "College Women's Mental Health, Physical Health, Academic and Relational Well-being" on Google voicemail and any telephone or email correspondence. Participants were informed that the study was voluntary, that they had the right to withdraw from the research study at any time, that their information would be kept confidential, and that any publication of the findings would be in a form that protected their identity (e.g., aggregate data).

Analytical Procedures

Power Analysis

For the hierarchical linear regression analyses, to estimate the sample size needed to detect a "true" effect, an a-priori power analysis was conducted in G*Power (version 3.1; Faul et al., 2007; see Appendix C). The statistical test conducted was a linear multiple regression, fixed model, R^2 increase. An alpha value of 0.05 and a Beta value of 0.95 were entered for a medium effect size (f^2 = 0.15), with a reported minimum sample size of 90. This study's effect size estimates were conservative in some respects, and on par in others, as van der Kolk and colleagues (1996/2007) examined the use of Trauma Center Trauma Sensitive Yoga, and found a strong clinical effect size associated with PTSD (d = 1.07) and a moderate change score effect on depression (d = - 0.60). Further, findings from a systematic review and quantitative synthesis of yoga interventions for depression, anxiety, and PTSD in the aftermath of traumatic experiences noted effect sizes ranging from moderate to strong (ds = 0.40-1.06). A total of 14 predictors, the maximum amount for all the hierarchical linear regression models, which included the one test predictor (i.e., focal variable yoga participation versus non-participation) were

entered into the analysis. For the hierarchical logistic regression analysis, one variable was included per 10 participants (Peduzzi et al., 1996). Thus, with nine included variables, a sample size of 90 participants (or cases), at minimum, was deemed needed to find a "true" effect.

Data Cleaning

A total of 289 students completed the eligibility form and a subsequent 248 students consented to the study. From there, a total of 235 students completed the survey (see Appendix I for a flow chart of data cleaning processes). I am unaware of the reasons why participants discontinued participation (n = 13) between consenting to the study and completing the survey. Of the students who completed the survey (n = 235), five cases were removed from the pool of participants for the following reasons: (a) repeat cases (e.g., same user ID and similar email as another case; n = 3) and (b) cases were determined suspicious (i.e., flagged as spam in Qualtrics, completed the survey in less than 5 minutes, information looked very similar to other survey submissions; n = 2). An additional 18 cases were removed due to containing less than 80% of complete data across the variables included in the regression models. As such, there were 212 remaining cases in the participant pool. From the full, main, sample (n = 212), a sub-sample of participants were identified who reported "yes" to *ever* being in a relationship and practicing yoga in the *past year* (n = 93).

Among the sub-sample of participants in which the main hypotheses and analyses were tested (n = 93), patterns of missing data were examined utilizing the SPSS missing value analysis function; specifically, univariate statistics, separate variance t-tests, cross-tabulations of categorical versus indicator variables, and Little's chi-square statistic that

tested whether the data were missing completely at random (i.e., MCAR test) by means of expectation maximum (EM; IBM, 2022). Findings indicated that the data were MCAR ($p > .05$), meaning that the pattern of missingness was not related to the observed and unobserved data (Arel-Bundock & Pelc, 2018). Within this sub-sample, given that the data were MCAR, there was a limited number of incomplete cases ($n = 5$) across data points ($n = 89$-93), and the minimum number of participants were met per the power analysis (see Appendix C), listwise deletion (or complete case analysis) was deemed an appropriate approach to handle missing data (Allison, 2014; Arel-Bundock & Pelc, 2018; Kang, 2013; Pepinsky, 2018).

Across all six regression models (see Table 3 and 4), multivariate outliers, which were cases that contained values that were very disparate from the other case values in the dataset, were examined to determine equal reliability in influencing the results (i.e., no influential observations) as determined by the following statistics and their thresholds — centered leverage (i.e., case with extreme distance between the observed values and the set of IV's mean values, .419), externally studentized residuals (i.e., case with high discrepancy between observed and predicted values of the outcome, $\pm$ 2.0), Cook's *D* (i.e., global influence of a case on the predicted values of the observed outcome, $\alpha = .50$), and DFBETAS (i.e., influence of a case on coefficients, $\pm$ 1.0; Cohen et al., 2015, Chapter 10). With cases only violating one of the three indicators, they were not determined problematic or in need of removal. Given the above findings, multivariate outliers were not examined for the Pearson's chi-square test and Pearson's r correlation analysis.

Analytical Models and Tests

This section describes the types of analyses conducted to answer the study's four research questions (RQ).

Descriptive Statistics

Descriptive, univariate, statistics were conducted to describe the sample. This included variable count, frequency distribution, central tendency (e.g., mean, mode, median), and dispersion (e.g., variance, standard deviation, skewness, kurtosis, range, interquartile range) (Field, 2013).

Research Question One

Research question one was as follows — what were the associations between dichotomous measures of race and ethnicity, sexual orientation, employment, mental health service use, IPV types (physical, harassment, emotional), and yoga participation? To answer research question one, the relationship among two dichotomous variables were examined utilizing Pearson's chi-square analysis. Forming a contingency table, this test demonstrated the difference between the observed frequencies of the categories to their expected frequencies (Cohen et al., 2015).

Research Question Two

Research question two was as follows — what were the strength and direction of the associations between continuous measures of ACEs, mental health symptoms (i.e., PTSD, depression, anxiety), body connection, and academic well-being? To answer research question two, the direction and strength of relationships among two continuous variables was examined utilizing Pearson's r correlation. This test examined the association of two variables based upon whether they covary (i.e., covariance);

specifically, change in one variable's deviation from the mean was met with the same or opposite change in the other variable's deviation from the mean (Cohen et al., 2015).

Research Question Three

Research question three was as follows — after controlling for confounding variables (i.e., socio-demographics and mental health service use; ACEs; IPV types physical, harassment, and emotional), did yoga participation predict differences in observed outcomes on the dependent variables (a) mental health symptoms (i.e., PTSD, depression, anxiety), (b) body connection, and (c) academic well-being? To answer research question three, five separate hierarchical linear regressions were conducted (see Table 3). This analysis ran a series of regressions, each with a pre-determined set of multiple independent variables, or one additional independent variable, on a dependent variable measured on ratio or interval level. Thus, the unique contribution between an independent variable(s) and the outcome was incrementally explained. With each additional variable, or set of variables, hierarchical regression allowed the researcher to examine its unique variance with the outcome variable (Cohen et al., 2015). One advantage of this data analysis technique was that the researcher can control for covariates (i.e., confounding variables) by partitioning out the variance between an independent variable, or set of variables, and the outcome variable. Subsequently, a focal variable(s) (i.e., main variable of interest) was entered into the model to examine their unique relationship (i.e., association) with the dependent variable above and beyond the control variable(s).

Within this study, in steps (or stages), a set of predetermined IVs were entered into each model to examine each sequence's (i.e., set of variables or focal variable)

unique relationship with the dependent variable (see Table 3). Each of the five continuous, dependent, variables were aggregated into a composite score and regressed on the IVs within separate models. These dependent variables included (a) PTSD symptoms (PCL-C), (b) depression symptoms (CESD-R), (c) anxiety symptoms (GAD-7), (d) body connection (SBC), and (e) academic well-being (CSSWQ). Covariates were controlled for within each model by entering them into the model first, as they may have also explained the variance between factors. The following covariates were entered into each model sequentially as sets based on similar characteristics. At step one, socio-demographics (i.e., race and ethnicity, sexual orientation, employment) and mental health service use were entered into the model. At step two, ACEs were entered into the model. At step three, IPV types (i.e., physical, harassment, emotional) were entered into the model. Lastly, at step four, the main variable of interest, yoga participation (versus non-participation), was entered into the model. Thus, I examined the unique variance between the covariates and the main variable yoga participation with each dependent variable (i.e., PCL-C, CESD-R, GAD-7, SBC, CSSWQ).

Table 3

Hierarchical Linear Regressions Analytical Models

Independent Variables	Dependent Variables (Separate Models)
Block/Step 1. Socio-demographics (race and ethnicity, sexual orientation, employment) and mental health service use	1. PTSD symptoms 2. Depression symptoms
Block/Step 2. ACEs	3. Anxiety symptoms
Block/Step 3. IPV Types (physical, harassment, emotional)	4. Body connection symptoms
Block/Step 4. Yoga participation versus non-participation	5. Academic well-being

Research Question Four

Research question four was as follows — did (a) socio-demographics (race and ethnicity, sexual orientation, employment status) and mental health service use, (b) ACEs, or (c) IPV types (physical, harassment, emotional) predict yoga participation? To answer research question four, a hierarchical logistic regression analysis was utilized for model six (see Table 4). Hierarchical logistic regression analysis is an extension of the generalized linear model, that allowed for a binary, nominal or ordinal, dependent variable to be regressed on an independent variable(s). Similar to the hierarchical linear regression, this analysis also ran a series of regressions, each with a pre-determined set of multiple independent variables, or one additional independent variable, on a dependent variable. Thus, the researcher could examine an additional variable, or a set of independent variables, and their unique relationship (i.e., association) with the dependent variable above and beyond the predecessor variable(s).

Within this study, I examined the unique variance between each step/set of independent variables and the dependent variable (i.e., yoga participation versus non-participation). Specifically, at step one, socio-demographics (i.e., race and ethnicity, sexual orientation, employment) and mental health service use were entered into the model. At step two, ACEs was entered into the model. At step three, IPV types (i.e., physical, harassment, emotional) were entered into the model. Thus, I examined the unique variance between the IVs and the dependent variable yoga participation.

Table 4

Hierarchical Logistic Regression Analytical Model

Independent Variables	**Dependent Variable**
Block/Step 1. Socio-demographics (race and ethnicity, sexual orientation, employment) and mental health service use	Yoga participation versus non-participation
Block/Step 2. ACEs	
Block/Step 3. IPV types (physical, harassment, emotional)	

CHAPTER 5

RESULTS

Results from the assumptions testing are delineated below for the specified analytical models that examined violations and to establish model fit, including Pearson's chi-square test, Pearson's r correlation, hierarchical linear regression, and hierarchical logistic regression. Following are the descriptive analyses of the overall study sample and the main sub-sample. Next are descriptions of the main results of each analytical test, including: (a) bivariate associations (answering research questions one and two), (b) hierarchical linear regression (answering research question three), and (c) hierarchical logistic regression (answering research question four).

Assumptions Testing

Research Question One

Adherence to statistical assumptions were first examined prior to conducting Pearson's chi-square analyses to examine bivariate associations among dichotomous variables. Findings indicated non-violation of assumptions, including (1) independence of data and (2) expected frequency.

Independence of Data. This assumption presumed that each case contributed to only one cell in the two-by-two contingency table; thus, the cases encompassed different entities within each category, which was met in this study (Field, 2013). Independence of data also asserted that each observation and its error terms were independent of one another; thus, the data cannot contain dependent sampling designs. Being that this study employed a cross-sectional research design in which data was collected at one point in time, this assumption was not violated.

Expected Frequency. This assumption asserted that in a two-by-two contingency table, no expected frequency was below the value of five. If this assumption was violated, it would have likely been due to a small sample size in which additional data should be collected to increase the dispersion of cases that contribute to each cell or category. This assumption was met.

Research Question Two

Adherence to statistical assumptions were first examined prior to conducting Pearson's R correlation to examine bivariate associations among continuous variables. Findings indicated non-violation of assumptions, including (1) form of the relationship and (2) normality of errors.

Form of the Relationship. This assumption presumed a correctly specified form, or linear relationship (i.e., straight line), between a continuous dependent variable (DV) and a continuous independent variable (IV) within the outlined model. When a non-linear relationship is present, issues may ensue, including biased regression coefficients and standard errors (Cohen et al., 2015; Field, 2013). Thus, potentially producing inaccurate model significance tests and confidence intervals. For each of the continuous variables (i.e., ACEs; PTSD, depression, and anxiety symptoms; body connection; academic well-being), the following steps were conducted to test for assumption violations. First, using a graphical display, scatterplots were created by separately plotting the values of one continuous variable against the values of another continuous variable. (Cohen et al., 2015; Field, 2013). Then, a locally weighted scatterplot smoothing (lowess) line was applied to examine the existence of a linear relationship as indicated by a generally

positively or negatively slanted straight line. Based on the above, form of the relationship was met (Cohen et al., 2015).

Normality of Errors. This assumption presumed that the residuals were random and were normally distributed with a mean of zero. Specifically, the variance between the observed data and the predicted model were close to zero (Field, 2013). Conversely, non-normality of residuals may have led to biased parameter estimates. To test this assumption, for each continuous variable, a probability-probability (i.e., p-p) plot was created, which graphically displayed the probability of a variable versus the probability of a certain distribution (in this case a normal distribution) (Field, 2013). Upon visual inspection, most values mapped upon the diagonal line of the plot, indicating similarity between the distributions. Based on the above, normality of residuals was met.

Research Question Three

Adherence to statistical assumptions were examined, with non-violation of assumptions found, prior to conducting a series of hierarchical linear regression analyses, including (1) form of the relationship, (2) correctly fitted model, (3) measurement error, (4) homoscedasticity of residuals, (5) non-independence of residuals, and (6) normality of errors (Cohen et al., 2015, Chapter 4). The following assumptions testing were guided by Cohen and colleagues (2015) and Field (2013).

Form of the Relationship. This assumption presumed a correctly specified form, or linear relationship (i.e., straight line), between a continuous dependent variable (DV) and each continuous independent variable (IV) within the outlined model. When a non-linear relationship is present, issues may ensue, including biased regression coefficients

and standard errors, which could produce inaccurate significance values and confidence intervals.

Being that ACEs was the only continuous variable within each model, the following steps were conducted to test for assumption violations. First, using a graphical display, scatterplots were created by separately plotting the IV, ACEs, against each DV. Then, a locally weighted scatterplot smoothing (lowess) line was applied to examine the existence of a linear relationship as indicated by a generally positively or negatively slanted, straight line, which was evident by a visual inspection of the scatterplots. Second, the Pearson product moment correlation coefficient (i.e., Pearson's r) was conducted to further examine the direction and strength of a linear association between ACEs and each DV (i.e., PTSD, depression, and anxiety symptoms; body connection; academic well-being) (Cohen et al., 2015). The variable ACEs was included in all the hierarchical linear regression analyses given that Pearson's r coefficient was significant at $p < .10$. Or, if Pearson's r coefficient was non-significant at $p \geq .10$, ACEs was still included based on theoretical and empirical justification. Third, a scatterplot was created by separately plotting the IV, ACEs, with each of the DV's standardized residuals (i.e., error). Then, a locally weighted scatterplot smoothing (lowess) line was applied to examine the existence of a non-linear relationship, which was evident by a visual inspection of the scatterplots. Based on the above, form of the relationship was met.

Correctly Fitted Model. This assumption specified that all relevant, meaningful, predictors were included in the model, with irrelevant predictors omitted. Although there was no definitive method to test this assumption, IVs were specified in the hypothesis and model testing based on a thorough examination of theory, prior empirical research

within this body of literature, and researcher hypothesis. The assumption of a correctly fitted model was presumably met.

Measurement Error. This assumption presumed minimal or absent measurement error. To test this assumption, internal consistency reliability of the measure was tested using coefficient alpha to examine how closely the measurement items grouped or "hung" around a similar construct or factor (i.e., Cronbach's alpha; Cronbach, 1951), which was an appropriate test given the cross-sectional nature of this study. The assumption of minimal or absent measurement error was met, as a coefficient alpha of .70 or greater was met for all measurement scales included in the models and was considered an adequate coefficient to proceed.

Homoscedasticity of Residuals. This assumption specified that the variance of the residuals (i.e., errors) pattern was constant; thus, there was no systematic pattern between the residuals and the IVs or the DV. Thus, the pattern was deemed homoscedastic. In the cases in which there is a pattern of nonconstant variance and a considerable departure from linearity, the pattern is deemed heteroscedastic, which can result in biased confidence intervals and significance testing. To test this assumption, using a graphical display, a scatterplot was created by separately plotting the IV, ACEs, with each of the standardized residuals, along with plotting the standardized residuals with the predicted values. After I visually examined the scatterplot, assumption of homoscedasticity was met, as indicated by the residual values appearing mostly randomly distributed around the mean of the residuals (i.e., 0-line) with a pattern that represented a horizontal "band", as opposed to a "cone" or oval (Cohen et al., 2015).

Non-independence of Residuals. This assumption indicated that the residuals (i.e., errors) were independent of one another. Oppositionally, related residuals can occur due to data collection, such as a longitudinal dataset or nested or group samples, also known as clustering. As a result, residuals within groups may be more alike or dependent of one another, as opposed to independent of one another, posing potential bias to standard errors (Cohen et al., 2015). Given that the data within this study were cross-sectional (i.e., point-in-time), and data collection occurred at one institution compared to clusters of multiple institutions, the assumption of non-independence was considered met.

Normality of Errors. This assumption presumed that the residuals were random and were normally distributed with a mean of zero. Specifically, the variance between the observed data and the predicted model were close to zero (Field, 2013). Conversely, non-normality of residuals may lead to biased parameter estimates. To test for assumption violations, first, a histogram was plotted of the standardized residuals, in which a normal curve distribution was overlayed. Upon visual inspection, the two did not appear to largely diverge. Second, a probability-probability (i.e., pp) plot was created, which graphically displayed the probability of a variable versus the probability of a certain distribution (in this case a normal distribution) (Field, 2013). Upon visual inspection, most values mapped upon the diagonal line of the plot, which indicated similarity between the distributions. Based on the above, normality of residuals was met.

Multicollinearity. This assumption indicated that the IVs within the regression model were not highly related, which can occur when one or more variables is an indicator of the same or similar factor or construct (e.g., depression and PTSD symptoms, IPV types). The objective was that each IV provided unique or independent information

above and beyond the other IVs. Independent variables were assessed for minimal multicollinearity (correlation), which was met within this study, as determined by a tolerance value greater than .10 and a variance inflation factor (VIF) value less than 10 (Cohen et al., 2015, Chapter 4).

Research Question Four

Adherence to statistical assumptions were first examined prior to conducting a hierarchical logistic regression analysis. Findings indicated non-violation of assumptions, including (1) binary dependent variable, (2) correctly fitted model, (3) independent errors, (4) linearity of independent variables and log odds, and (5) minimal or no multicollinearity among the independent variables (Field, 2013; Statistics Solutions, n.d.). The following assumptions testing were guided by Field (2013) and Statistics Solutions (n.d.).

Binary Dependent Variable. The dependent variable's attributes must be binary or dichotomous. Being that the dependent variable was yoga participation (i.e., yes) versus non-participation (i.e., no), this assumption was met. The probability of the outcome occurring (i.e., yoga participation) was coded as one; thus, the probability of the outcome not occurring (i.e., non-participation) was coded as zero.

Correctly Fitted Model. The assumption specified that all relevant, meaningful predictors were included in the model to avoid overfitting or underfitting. Although there was no definitive method to test this assumption, IVs were specified in the hypothesis and model testing based on a thorough examination of theory, prior empirical research within this body of literature, and researcher suspicion. This assumption was presumably met.

Independent Errors. This assumption asserted that each observation and its error terms were independent of one another; thus, the data cannot contain dependent sampling designs. Being that this study employed a cross-sectional research design in which data was collected at one point in time, this assumption was not violated.

Linearity. This assumption asserted that there was a linear relationship between the continuous IV, ACEs, and the log (or the logit) of the DV, yoga participation. To test this assumption, a logistic regression analysis was utilized that included the interaction between the IV, ACEs, and the log of ACEs as a predictor of the DV, yoga participation. Being that the interaction was non-significant, the assumption of linearity was met.

Multicollinearity. This assumption indicated that the IVs within the regression model were not highly related, which can occur when one or more variables is an indicator of the same or similar factor or construct (e.g., depression and PTSD symptoms, IPV types). The objective was that each IV provides unique or independent information above and beyond the other IVs. To test this assumption, Pearson's chi-square test was conducted among dichotomous variables, with no violations of multicollinearity noted.

Descriptive Analysis

Overall Study Sample

This section outlines the descriptive findings of the overall study sample (n = 212). Students within this study were enrolled at an urban, public research university in the southwestern United States. Participants were between the ages of 18 and 24 years (M = 20.1, SD = 1.48). Slightly more than half of the students were employed part-time (55%) and were white (51%), followed by Hispanic or Latinx (19%), Asian (10%), Multiracial (10%), Black or African American (4%), or of another race and ethnicity

(5%) (i.e., Native Hawaiian, American Indian, not listed or incorrectly specified). The majority of students were cisgender women (86%), followed by feminine-presenting (4.7%), or of another gender and/or gender expression (9%) (i.e., agender, transgender man, masculine-presenting, feminine-of-center, femme, gender fluid, non-binary, non-conforming, not listed or incorrectly specified; participants could choose multiple attributes).[11] Most participants were heterosexual (67%), followed by bisexual (19%), questioning (6%), pansexual (3%), or of another sexual orientation (5%) (i.e., multiple sexual identities, queer, lesbian, gay, asexual, not listed or incorrectly specified). Nearly all students were enrolled full-time (97%), and half were undergraduate students in their third through fifth year (51%), followed by undergraduate students in their first and second year (45%), and masters or doctorate students (5%).

Most students practiced yoga within the last year (70%), and of those students, most practiced yoga within the past six months (80%). Of the students who practiced yoga within the past six months, 42% practiced yoga less than once a month on average. Most students (80%) perceived themselves as a beginner yoga practitioner. Additionally, 31% of the students reported that COVID-19 impacted how frequently they did yoga, with 51% practicing yoga less frequently and 49% practicing yoga more frequently.

Main Sub-Sample

Pulled from the overall study sample (n = 212), the main subsample (n = 93), in which research questions one through four were examined, comprised students who

[11] Students were included in this study if they were 18-24 years of age, a part-time or full-time ASU student, and answered "yes" to the eligibility question, "are you a woman?" One of the eligible students answered "yes" to being a woman and identified as a transgender man. By virtue of their answer to the eligibility question, they were included in this study instead of excluding the participant based on the latter.

reported having ever been in an intimate relationship and practiced yoga within the past year (see Table 5). As determined by Pearson's chi-square analysis, no significant differences were found between the overall study sample and the main sub-sample on students' sexual orientation and employment ($p > .05$); however, significant differences were found between samples on race. Compared to the overall sample, students in the sub-sample were less likely to be Hispanic/Latinx, than non-Hispanic/Latinx, ($\chi^2(1) = 4.400$, $p < .05$), and less likely to be of another race and ethnicity (i.e., Alaska Native, American Indian, Black or African American, Multiracial, Native Hawaiian, Other Pacific Islander, not listed or incorrectly specified), than not of another race and ethnicity ($\chi^2(1) = 7.128$, $p < .01$). Further, compared to the overall study sample, students in the sub-sample were three times more likely to be white, than non-white, ($\chi^2(1) = 17.680$, $p < .001$). There was also a significant difference between samples on mental health service use ($\chi^2(1) = 5.699$, $p < .05$). The odds of ever using mental health services was two times higher for students in the sub-sample compared to students in the overall sample.

Additionally, as determined by independent samples *t*-test (i.e., unpaired samples *t*-test), no significant differences were found between sample means on age (in years), ACEs, mental health symptoms (i.e., depression, PTSD, anxiety), and body connection ($p > .05$); however, mean differences were found between samples on academic well-being, $t(209) = 2.790$, $p < .01$, 95% CI [1.48, 8.62]. Students in the sub-sample reported slightly higher average scores on academic well-being ($M = 92.8$, $SD = 12.9$), indicating better educational welfare, than the students in the overall sample ($M = 87.8$, $SD = 13.2$). Differences between samples on IPV types (i.e., physical, harassment, emotional) were not examined given that students who have never been in an intimate relationship ($n = 56$,

26.4%) were not given IPV-related questions. Further, differences between samples on yoga variables were not examined given issues of data independence or overlap between samples.

Descriptively, however, within the main sub-sample, fewer participants perceived themselves as a beginner yoga practitioner (70%, 80%). Although, this was not reflected in any noteworthy differences between the main sub-sample group and the overall sample group in terms of yoga practice frequency within the last six months. Also, compared to the overall study sample, slightly more students in the main sub-sample reported that COVID-19 impacted how frequently they did yoga (42%, 31%). Of those that COVID-19 did impact, about half (46%) practiced yoga less frequently and about half (54%) practiced yoga more frequently. Of those students who practiced yoga less frequently, 78% did not practice yoga at least 30 minutes per week in the past six months compared to 22% who did. Of those students who practiced yoga more frequently, 71% did not practice yoga at least 30 minutes per week in the past six months compared to 29% who did. Thus, considering the potential implications of students' yoga practice during COVID-19 remains of considerable importance in this study.

Table 5

Demographic Characteristics Main Sub-Sample (n = 93)

Characteristic	*n* (*M*, *SD*)	%
Socio-demographics		
Age (in years)	20.2 (1.5)	100.0
Gender and/or gender expression (could choose multiple responses)		
Cisgender woman	80	86.0
Another (feminine-of-center, feminine-presenting, non-binary)	8	8.6
Missing	5	5.4
Race and Ethnicity		
Asian	8	8.6
Hispanic or Latinx	12	12.9
White	63	67.7
Another (Black or African American, Multiracial, incorrect/not listed)	10	10.8
Sexual orientation		
Bisexual	15	16.1
Straight/Heterosexual	66	71.0
Another (asexual, multiple sexual identities, pansexual, queer, questioning, incorrect/not listed)	12	12.9
Employment		
Part-time	57	61.3
Full-time	13	14.0
Not employed	23	24.7
Enrollment status		
Full-time	90	96.8
Part-time	3	3.2
Current year in school		
First and second year undergraduate	38	40.9

Third through fifth year undergraduate	48	51.6
Masters or doctorate	7	7.5
Relationship status		
Boyfriend, girlfriend, or partner	70	75.3
Dating or ongoing sexual partner	17	18.3
Another (engaged, spouse, incorrect/not listed)	6	6.5
Relationship length		
Less than six months	28	30.1
Six months to less than one year	14	15.1
More than one year	51	54.8
Gender of intimate partner		
Cisgender man	81	87.1
Cisgender woman	4	4.3
Another (agender, non-binary, masculine-of-center, masculine-presenting)	7	7.5
Missing	1	1.1
Mental Health Service Use		
Ever		
No	37	39.8
Yes	56	60.2
Last year		
No	18	32.1
Yes	38	67.9
Yoga Participation		
Ever		
No	0	0.0
Yes	93	100.0
Last year		
No	0	0.0

Yes	93	100.0
Last six months		
No	17	18.3
Yes	76	81.7
Frequency within last six months (on average)		
Less than once a month	33	43.4
Once a month	18	23.7
Biweekly	9	11.8
Weekly	16	21.1
Weekly (on average)		
Less than one hour	7	43.8
One hour to less than five hours	9	56.3
Yoga level		
Beginner	65	69.9
Intermediate	28	30.1
Types/styles typically practiced (could choose multiple responses)		
Ashtanga	4	4.3
Bikram/hot yoga	10	10.8
Chair	3	3.2
Hatha	3	3.2
Power	11	11.8
Restorative	23	24.7
Vinyasa flow	41	44.1
Yin	9	9.7
Nidra	5	5.4
Trauma-sensitive or Trauma-informed	2	2.2
Not sure	45	48.4
Incorrect/not listed	3	3.2
Other (Forrest, Kundalini, Partner)	4	4.4

Intimate Partner Violence		
Composite	3.53 (11.1)	100
Physical		
No	81	87.1
Yes	12	12.9
Harassment		
No	86	92.5
Yes	7	7.5
Emotional		
No	75	80.6
Yes	18	19.4
Severe		
No	81	87.1
Yes	12	12.9
Adverse Childhood Experiences		
Composite Abuse [a]	1.40 (1.7)	98.9
Psychological Abuse		
No	42	45.2
Yes	51	54.8
Physical Abuse		
No	67	72.0
Yes	25	26.9
Missing	1	1.1
Sexual Abuse		
No	75	80.6
Yes	18	19.4
Category Frequency		
0	37	39.8
1	26	28.0

2	21	22.6
3	8	8.6
Missing	1	1.1
Mental Health		
Post-traumatic stress disorder symptoms [b]	34.68 (15.2)	100
Depression symptoms [c]	20.99 (17.2)	100
Anxiety symptoms [d]	8.48 (6.0)	100
Body Connection [e]	44.89 (9.7)	96.8
Academic Well-being [f]	92.80 (12.9)	100

Note. The main sub-sample consists of only participants who have *ever* been in an intimate relationship and who have practiced yoga within the *last year*.

[a] Only three (i.e., emotional, physical, and sexual abuse) categories were utilized out of the seven total categories. Further, a sum score was created based on each item within the three categories, for which scores ranged from zero to eight. [b] Total possible score of 17 to 85. [c] Total possible score of 0 to 80. [d] Total possible score of 0 to 21 with a mean score of 8 representing a mild-to-moderate level of anxiety. [e] Total possible score of 0 to 80. [f] Total possible score of 16 to 112.

Main Results

Research Question One

Pearson's chi-square test was utilized to answer research question one: among young adult collegiate women, 18-24 years of age, what were the associations between dichotomous measures of race and ethnicity, sexual orientation, employment, health care service use, IPV types (physical, harassment, emotional), and yoga participation? Findings demonstrated a statistically significant relationship among part-time employment and *ever* receiving mental health services, $\chi^2(1) = 7.563$, $p < .01$ (see Table 6). This indicated that having ever received mental health services was less likely among students who were employed part-time, than those not employed. Moreover, part-time employment, $\chi^2(1) = 7.353$, $p < .01$, was significantly associated with IPV emotional abuse; meaning that experiencing emotional abuse by an intimate partner within the past six months, was less likely among students who were employed part-time than those not employed (see Table 7).

Table 6

Employment and Mental Health Service Use

	Mental Health Service Use Ever					
	No		Yes			
Employment Part-time	n	%	n	%	Total %	X^2
No	8	8.6	28	30.1	38.7	7.563**
Yes	29	31.2	28	30.1	61.3	

*$p < .05$. **$p < .01$.

Table 7

Employment and Emotional Abuse

	CAS Emotional Abuse					
	No		Yes			
Employment Part-time	n	%	n	%	Total %	X^2
No	24	25.8	12	12.9	38.7	7.353**
Yes	51	54.8	6	6.5	61.3	

Note. CAS = Composite Abuse Scale.
*p < .05. **p < .01.

Research Question Two

Pearson's correlation analysis (see Table 8) was utilized to answer research question two: among young adult collegiate women, 18-24 years of age, what were the strength and direction of the associations between continuous measures of ACEs, mental health symptoms (i.e., PTSD, depression, anxiety), body connection, and academic well-being? Associations between continuous variables were examined utilizing Pearson's correlation analysis. Findings indicated a moderate, positive, relationship between ACEs and depression symptoms (r = .413, p < .001), as well as ACEs and PTSD symptoms (r = .416, p < .001); which indicated that students with a higher ACE score also had a higher depression and PTSD symptoms score. Moreover, there was a small, negative, relationship between ACEs and academic well-being, in that students with a higher ACE score reported a lower academic well-being score (r = -.209, p < .05).

There was a strong, positive relationship between depression and PTSD symptoms (r = .828, p < .001), as well as depression and anxiety symptoms (r = .764, p < .001). This indicated that students who scored higher on depression symptoms also reported higher scores on PTSD and anxiety symptoms. Additionally, there was a

moderate, negative, relationship between depression symptoms and academic well-being; meaning that students with a higher score on depression symptoms reported a lower academic well-being score (r = -.348, p < .001).

Findings also indicated a strong, positive relationship between PTSD and anxiety symptoms (r = .810, p < .001), and a moderate, negative, relationship between PTSD symptoms and academic well-being (r = -.346, p < .001). This suggested that students who scored higher on PTSD symptoms also scored higher on anxiety symptoms and scored lower on academic well-being. There was also a moderate, negative association between anxiety symptoms and academic well-being (r = -.306, p < .01), meaning that students who scored higher on symptoms of anxiety also reported a lower academic well-being score. Lastly, findings demonstrated a moderate-to-large, positive relationship between SBC and academic wellbeing (r = .419, p < .001); which indicated that students with a higher SBC score reported a higher score on academic well-being. The above findings alluded to the co-occurrence of adverse mental health outcomes and their connection with students' post-secondary academics. Moreover, the construct of body connection, specifically a higher level of body awareness, appeared to be moderately related to students' higher scores on academic well-being.

Table 8

Bivariate Associations

		ACEs	CESD-R	PCL-C	GAD-7	SBC	CSSWQ
ACEs [a]	Coefficient r	1	.413***	.416***	0.196	-0.197	-.209*
	n	92	92	92	92	89	92
CESD-R	Coefficient r	-	1	.828***	.764***	-0.136	-.348***
	n			93	93	90	93
PCL-C	Coefficient r	-	-	1	.810***	-0.192	-.346***
	n				93	90	93
GAD-7	Coefficient r	-	-	-	1	-0.143	-.306**
	n					90	93
SBC	Coefficient r	-	-	-	-	1	.419***
	n						90
CSSWQ	Coefficient r	-	-	-	-	-	1
	n						93

Note. ACEs = Adverse Childhood Experiences, CESD-R = Center for Epidemiologic Studies Scale Revised, PCL-C = Post-Traumatic Stress Disorder Checklist – Civilian Version, GAD-7 = Generalized Anxiety Disorder 7 item, SBC = The Scale of Body Connection, CSSWQ = The College Student Subjective Wellbeing Questionnaire.

[a] Only three (i.e., emotional, physical, and sexual abuse) categories were assessed out of the seven categories. Further, a sum score was created based on each item within the three categories, for which scores ranged from zero to eight.

*$p < .05$. **$p < .01$. ***$p < .001$.

Research Question Three

A hierarchical linear regression was applied to answer research question three: among young adult collegiate women, 18-24 years of age, after controlling for confounding variables (i.e., socio-demographics and mental health service use; ACEs; IPV types physical, harassment, and emotional), did yoga participation predict

differences in observed outcomes on the dependent variables (a) mental health symptoms (i.e., PTSD, depression, anxiety), (b) body connection, and (c) academic well-being? One model for each DV was created: PTSD symptoms, depression symptoms, anxiety symptoms, body connection, and academic well-being. Within each of these five models (see Table 3), the independent variables (1) socio-demographics and mental health service use, (2) ACEs, (3) IPV types (physical, harassment, emotional), and (4) yoga participation were sequentially entered in four blocks/steps to examine their unique association with each dependent variable.

Post-Traumatic Stress Disorder Symptoms. This model examined the unique contribution between the focal independent variable, yoga participation, and the dependent variable, PTSD symptoms, after controlling for the independent variables socio-demographics and mental health service use, ACEs, and IPV types (physical, harassment, emotional) (see Table 9). The socio-demographics and mental health service use block did not significantly account for any of the explained variance in PTSD symptoms ($p > .05$). The addition of the ACEs block significantly resulted in a 13.7% increase in the explained variance in PTSD symptoms, for a total accounted variance of 24.4%, $F(1, 82) = 2.944$, $p < .01$. The inclusion of the IPV block significantly accounted for an additional 8.9% of the explained variance in PTSD symptoms, for a total accounted variance of 33.3%, $F(3, 79) = 3.288$, $p < .001$. The addition of the yoga participation block, which encompassed the overall model, significantly accounted for 33.4% of the total explained variance in PTSD symptoms, in which yoga participation accounted for a very small increase in the explained variance in the outcome, $F(1, 78) = 3.012$, $p < .01$, $\Delta R^2 = .001$.

Examining the model coefficients for the yoga participation block, which was the main block of interest, ACEs ($\beta = .305, p < .01$) and IPV harassment ($\beta = .296, p < .05$) demonstrated a positive relationship with PTSD symptoms. This indicated that students with a higher ACE score, and students who experienced IPV harassment within the past six months, compared to those who did not experience IPV harassment, were more likely to report a higher score on PTSD symptoms. ACEs and IPV harassment accounted for a nearly equal magnitude of explained variance in the outcome PTSD symptoms. The main variable of interest, yoga participation, was not a significant predictor of PTSD symptoms. For a complete display of the model coefficients and associated p-values, including non-significant coefficients ($p > .05$), see Appendix J.

Table 9

Post-Traumatic Stress Disorder Symptoms (Final Block/Step)

	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B		Collinearity Statistics	
Model	B	Std. Error for B	*β*	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	27.295	4.497		6.069	<.001	18.341	36.249		
Race and Ethnicity (ref. white)									
Hispanic or Latinx	2.020	4.382	.045	.461	.646	-6.704	10.744	.903	1.107
Asian	5.182	5.305	.096	.977	.332	-5.379	15.743	.880	1.136
Another Race and Ethnicity [a]	3.929	4.777	.081	.823	.413	-5.581	13.439	.890	1.124
Sexual Orientation (ref. heterosexual)									
Bisexual Orientation	4.321	4.379	.102	.987	.327	-4.397	13.039	.795	1.258
Another Sexual Orientation [b]	.682	4.422	.015	.154	.878	-8.121	9.484	.887	1.128
Employment (ref. not employed)									
Employment Part-time	-2.239	3.719	-.072	-.602	.549	-9.643	5.165	.597	1.675
Employment Full-time	-7.819	4.934	-.179	-1.585	.117	-17.641	2.003	.666	1.502
Mental Health Service Use Ever [c]	4.971	3.146	.160	1.580	.118	-1.293	11.234	.834	1.199
Interpersonal Violence ACEs Composite [d]	2.790	.958	.305	2.911	**.005**	.882	4.698	.775	1.290

CAS Physical Abuse [e]	4.803	5.780	.107	.831	.408	-6.703	16.310	.519	1.927
CAS Harassment [f]	16.967	7.300	.296`	2.324	**.023**	2.435	31.500	.525	1.905
CAS Emotional Abuse [g]	-3.973	4.919	-.104	-.808	.422	-13.766	5.820	.516	1.936
Yoga Participation [h]	-1.495	4.114	-.035	-.363	.717	-9.686	6.696	.900	1.111

Note. ACEs = Adverse Childhood Experiences, CAS = Composite Abuse Scale.
[a] Black or African American, Multiracial, not listed or incorrectly specified. [b] Asexual, multiple sexual identities, pansexual, queer, questioning, not listed or incorrectly specified. [c] 0 = no mental health service use ever, 1 = yes mental health service use ever. [d] Only three (i.e., emotional, physical, and sexual abuse) categories were utilized out of the seven total categories. [e] 0 = no CAS physical abuse, 1 = yes CAS physical abuse. [f] 0 = no CAS harassment, 1 = yes CAS harassment. [g] 0 = no CAS emotional abuse, 1 = yes CAS emotional abuse. [h] 0 = no yoga participation, 1 = yes yoga participation.
*$p < .05$. ** $p < .01$. *** $p < .001$.

Depression Symptoms. This model examined the unique contribution between the focal independent variable, yoga participation, and the dependent variable, depression symptoms, after controlling for the independent variables socio-demographics and mental health service use, ACEs, and IPV types (physical, harassment, emotional) (see Table 10). The socio-demographics and mental health service use block did not significantly account for any of the explained variance in depression ($p > .05$). The addition of the ACEs block significantly resulted in a large increase of 14.7% in the explained variance in depression symptoms, for a total accounted variance of 30.6%, $F(1, 82) = 4.023$, $p < .001$. For the IPV block, the model significantly accounted for 35.2% of the total explained variance in depression symptoms, in which the addition of the IPV types accounted for a 4.6% increase in the explained variance in the outcome, $F(3, 79) = 3.583$, $p < .001$. For the yoga participation block, the overall model significantly accounted for 35.3% of the total explained variance in depression symptoms; however, the addition of yoga participation accounted for a very small increase in the explained variance in the outcome, $F(1, 78) = 3.274$, $p < .001$, $\Delta R^2 = .001\%$.

Examining the model coefficients for the yoga participation block, which was the main block of interest, ACEs ($\beta = .337, p < .01$) was a significant, positive predictor of depression symptoms. This means that students with a higher ACEs score reported higher scores on the depression scale. Additionally, employment full-time (compared to no employment) was a significant, negative predictor of students' score on depression symptoms ($\beta = -.229, p < .05$), meaning students employed full-time, compared to not employed, reported lower scores on the depression scale. The main variable of interest, yoga participation, was not a significant predictor of depression. ACEs was the predictor

with the strongest magnitude of explained variance on the score of depression symptoms. For a complete display of the model coefficients and associated p-values, including non-significant coefficients ($p > .05$), see Appendix K.

Table 10

Depression Symptoms (Final Block/Step)

Model	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error for B	β	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	16.490	4.883		3.377	.001	6.769	26.211		
Race and Ethnicity (ref. white)									
Hispanic or Latinx	-2.057	4.757	-.041	-.432	.667	-11.528	7.415	.903	1.107
Asian	-.262	5.760	-.004	-.045	.964	-11.729	11.205	.880	1.136
Another Race and Ethnicity[a]	-7.122	5.186	-.133	-1.373	.174	-17.447	3.203	.890	1.124
Sexual Orientation (ref. heterosexual)									
Bisexual Orientation	9.281	4.755	.199	1.952	.055	-.185	18.747	.795	1.258
Another Sexual Orientation [b]	2.766	4.801	.056	.576	.566	-6.792	12.323	.887	1.128
Employment (ref. not employed)									
Employment Part-time	-5.412	4.038	-.158	-1.340	.184	-13.450	2.627	.597	1.675
Employment Full-time	-10.990	5.357	-.229	-2.052	**.044**	-21.654	-.326	.666	1.502
Mental Health Service Use Ever [c]	3.693	3.416	.108	1.081	.283	-3.107	10.494	.834	1.199
Interpersonal Violence									
ACEs Composite [d]	3.394	1.040	.337	3.262	**.002**	1.323	5.465	.775	1.290
CAS Physical Abuse [e]	4.418	6.275	.089	.704	.483	-8.075	16.911	.519	1.927
CAS Harassment [f]	13.421	7.925	.213	1.693	.094	-2.358	29.199	.525	1.905

CAS Emotional Abuse [g]	-2.928	5.341	-.069	-.548	.585	-13.561	7.704	.516	1.936
Yoga Participation [h]	1.200	4.467	.026	.269	.789	-7.693	10.093	.900	1.111

Note. ACEs = Adverse Childhood Experiences, CAS = Composite Abuse Scale.
[a] Black or African American, Multiracial, not listed or incorrectly specified. [b] Asexual, multiple sexual identities, pansexual, queer, questioning, not listed or incorrectly specified. [c] 0 = no mental health service use ever, 1 = yes mental health service use ever. [d] Only three (i.e., emotional, physical, and sexual abuse) categories were utilized out of the seven total categories. [e] 0 = no CAS physical abuse, 1 = yes CAS physical abuse. [f] 0 = no CAS harassment, 1 = yes CAS harassment. [g] 0 = no CAS emotional abuse, 1 = yes CAS emotional abuse. [h] 0 = no yoga participation, 1 = yes yoga participation.
*$p < .05$. ** $p < .01$. *** $p < .001$.

Generalized Anxiety Disorder Symptoms. This model examined the unique contribution between the focal independent variable, yoga participation, and the dependent variable, anxiety symptoms, after controlling for the independent variables socio-demographics and mental health service use, ACEs, and IPV types (physical, harassment, emotional). The socio-demographics and mental health service use block, $F(8, 83) = .916$, $p > .05$); the ACEs block, $F(1, 82) = 1.092$, $p > .05$); the IPV block, $F(3, 79) = 1.112$, $p > .05$); and the yoga participation block, $F(1, 78) = 1.043$, $p > .05$) did not significantly account for any of the explained variance in anxiety symptoms.

Body Connection. This model ($n = 89$) examined the unique contribution between the focal independent variable, yoga participation, and the dependent variable, body connection, after controlling for the independent variables socio-demographics and mental health service use, ACEs, and IPV types (physical, harassment, emotional). The socio-demographics and mental health service use block, $F(8, 80) = .875$, $p > .05$; the ACEs block, $F(1, 79) = 1.109$, $p > .05$; the IPV block, $F(3, 76) = 1.351$, $p > .05$; and the yoga participation block, $F(1, 75) = 1.732$, $p > .05$ did not significantly account for any of the explained variance in body connection.

Academic Wellbeing. This model examined the unique contribution between the focal independent variable, yoga participation, and the dependent variable, academic well-being, after controlling for the independent variables socio-demographics and mental health service use, ACEs, and IPV types (physical, harassment, emotional). The socio-demographics and mental health service use block, $F(8, 83) = .873$, $p > .05$; the ACEs block, $F(1, 82) = 1.231$, $p > .05$; the IPV block, $F(3, 79) = 1.198$, $p > .05$; and the

yoga participation block, $F(1, 78) = 1.166$, $p > .05$ did not significantly account for any of the explained variance in academic wellbeing.

Research Question Four

A hierarchical logistic regression analysis was applied to answer research question four: among young adult collegiate women, 18-24 years of age, did (a) socio-demographics (i.e., race and ethnicity, sexual orientation, employment status) and mental health service use, (b) ACEs, or (c) IPV types (physical, harassment, emotional) predict participation in yoga? Independent variables were sequentially entered in three blocks/steps to examine their unique association with yoga participation: (1) socio-demographics (race and ethnicity, sexual orientation, employment) and mental health service use, (2) ACEs, and (3) IPV types (physical, harassment, emotional) (see Table 4). Model findings ($n = 92$) indicated that the socio-demographics and mental health service use block, $X^2(5) = 2.855$, $p > .05$; the change in chi-square for the ACEs block, $X^2(1) = .481$, $p > .05$; and the change in chi-square for the IPV block, $X^2(3) = 5.392$, $p > .05$ did not significantly account for any explained variance in yoga participation.

CHAPTER 6

DISCUSSION AND IMPLICATIONS

This chapter discusses the main findings provided in chapter five while situating the findings alongside the backdrop of prior scholarly literature. Outlined are findings related to collegiate women's experiences of interpersonal violence victimization, mental health and academic well-being, yoga, and body connection. Subsequently, three main takeaways from this study are summarized. Then, the limitations of this study are discussed. Lastly, implications are provided as to policy, research, practice, and education within the field of social work.

Interpersonal Violence

The prevalence of IPV victimization, specifically emotional and physical abuse, as well as harassment, was lower compared to prevalence rates among collegiate women reported elsewhere (Wolford-Clevenger et al., 2016). This study assessed IPV victimization within the past six months compared to IPV within the past 12 months, as was examined in other research (Wolford-Clevenger et al., 2016), which could account for variation in prevalence. Further, the disparity in prevalence could be partially attributed to COVID-19, in that post-secondary education transitioned to emergency teaching across the U.S., where classes migrated primarily from in-person to online (Johnson et al., 2020) and campus housing was closed (Keyserlingk et al., 2022). As such, students' dating and intimate partner relational activities and characteristics may have changed, including patterns of IPV victimization. Thus, potentially indicating a reduction in the prevalence of IPV victimization primarily inflicted in person, such as physical abuse and harassment. However, data collection began about a year after

COVID-19 was first confirmed in the United States (Center for Disease Control and Prevention, 2022), so the implications of the pandemic on students' relationships may not be as salient.

Further, the adult literature has demonstrated an increased prevalence of IPV victimization during the COVID-19 pandemic compared to pre-pandemic times (Gosangi et al., 2021), which may be partially related to the stay-at-home/shelter-in-place policy by public health officials (Piquero et al., 2020). On the contrary, given residential changes related to COVID-19, young adult collegiate students who cohabitated with their peers or an intimate partner(s) pre-pandemic may not have post-pandemic (e.g., living with parents) (White et al., 2020). Thus, assessing for IPV-related digital dating abuse is even more essential among this collegiate population. Findings also demonstrate that young adult collegiate women employed part-time were less likely to experience emotional abuse by an intimate partner within the past six months. Although causative claims cannot be made, part-time employment, including aspects of financial security and independence, may play an important role in safeguarding students against IPV. Adversely, adjacent literature found an insignificant relationship between employment and IPV victimization among nontraditional Hispanic college students (Luo et al., 2020), warranting further examination of the relationship between students' economics and interpersonal violence victimization.

In addition to IPV experiences among collegiate women within this study, supporting prior literature, students within this study report histories of ACEs, in which 60% of the women reported one to three categories of ACEs (emotional, physical, and/or sexual). Further, findings from this study as to the prevalence rates of psychological and

sexual abuse were higher compared to data noted elsewhere (Husky et al., 2022; Khrapatina, 2016); however, the prevalence rate of physical abuse among women in this study was within range of other scholarly literature (Forster et al., 2021; Husky et al., 2022; Khrapatina, 2016). These findings reinforce the body of empirical literature that illuminate the prevalence of childhood victimization among young adult collegiate women. Moreover, students with higher ACE scores also reported higher scores on all the mental health indicators (i.e., symptoms of PTSD and depression), except for anxiety symptoms, and scored lower on academic well-being. These findings within this sample support the body of empirical research on ACEs, demonstrating an association between childhood adversities and worse outcomes on symptoms of PTSD (Dolbier et al., 2021) and depression (Husky et al., 2022), along with academic performance in young adulthood (Watt et al., 2021). ACEs continue to play an integral role in women students' health and post-secondary well-being, pointing to the importance of assessing for prior victimization.

Mental Health and Academic Well-being

Within this study, young adult collegiate women employed part-time, compared to those not employed, were less likely to have *ever* received mental health services. Although causative claims as to the relationship between the observations cannot be made, several theories can be proposed. For example, employment may act as a buffer against adverse mental health. Second, for university students in which employment is essential economically, they may be less able to afford mental health services. Alternatively, students who have never received mental health services may be better able to retain part-time employment.

Findings also indicate moderate-to-strong, positive relationships among scores on the mental health indicators,[12] alluding to the comorbidity (i.e., multiple co-occurring ailments or medical conditions) of adverse mental health outcomes, as is evidenced from prior literature among college students globally (Auerbach et al., 2018) and among US college students with experiences of sexual violence (Parr, 2020) and other potentially traumatic events (Cusack et al., 2019). Further, students with higher scores on symptoms of PTSD, anxiety, and depression also scored lower on academic well-being. Similar findings were found nationally among women college students in terms of ongoing or chronic mental health conditions acting as barriers to academic performance (NCHA, 2022).

Additionally, findings from the PTSD symptoms model indicate that young adult collegiate women with higher ACE scores, as well as students who experienced harassment by their intimate partner in the past six months (compared to women who did not), reported higher scores of PTSD symptoms. These findings align with prior research demonstrating the deleterious mental health outcomes among women college students, particularly PTSD, related to experiencing childhood abuses (Dolbier et al., 2021) and young adult IPV (Eshelman & Levendosky, 2012; Wood et al., 2020). The total variance explained by the overall model was 33.4%, indicating that important, relevant indicator variables that share a relationship with PTSD symptoms are missing. Based on prior research regarding factors associated with PTSD, re-specification of the model may include emotional regulation repertoires (Pugach & Wisco, 2021) and coping strategies

[12] Findings may also allude to the indicators sharing a similar overarching construct of mental health.

(Viana Machado et al., 2020), other mental health symptoms (e.g., depressive and anxiety), alcohol use, other interpersonal traumatic experiences (i.e., not ACEs or IPV related), and personality characteristics (e.g., neuroticism) (Cusack et al., 2019). Further, a sense of belonging, which accounted for 50% of the explained variance in PTSD among undergraduate students, calls for further examination in future studies (Shalka & Leal, 2022).

Findings from the depression model indicate that women collegiate students who were employed full-time, compared to those not employed, reported lower scores on depression symptoms. This finding may be partially explained by adjacent literature among adult women in abusive relationships, in which employment fostered empowerment, including access to resources, feelings of success, and rediscovered self-identity (Kumar & Casey, 2017). In contrast, prior literature demonstrated no significant difference between employed and unemployed collegiate students on self-reported levels of depression; however, the sample average indicated minimal depression symptoms (Mounsey et al., 2013). Although this assertion is beyond the confines of this study, one reason for this finding may be that full-time employment offered a sense of mental health solace and financial support during the COVID-19 pandemic that non-employed collegiate students did not experience. Retrospective research may examine this further.

Adversely, within this study, collegiate women students with higher ACE scores also reported higher scores on depression symptoms, which is supported by several studies (Dolbier et al., 2021; Fitzgerald & Kawar, 2022; Grigsby et al., 2020; Husky et al., 2022). Findings continue to support the narrative of the mental health barriers that students may face who are pursuing post-secondary education. Further, near-significant

results ($p < .10$) indicate that bisexual students ($p = .05$), compared to heterosexual students, and students who experienced IPV harassment within the past six months ($p = .09$), compared to those who did not, reported higher scores on depression symptoms. The total variance explained by the overall model was 35%, indicating that important, relevant indicator variables that share a relationship with depression symptoms are missing. Based on prior research regarding factors associated with depression symptoms, re-specification of the model may include examining the unique relationship with, and controlling for, gender, personality characteristics (e.g., neuroticism), coping strategies (e.g., negative autonomic thoughts or rumination), as well as college and general life stress (Lester, 2014; Liu et al., 2019).

Yoga Participation

The focal variable, yoga participation, and the dependent variables mental health symptoms (i.e., PTSD, depression, anxiety), body connection, and academic well-being were examined with insignificant results. Several potential factors may contribute to the study's findings. One reason may be that yoga was operationalized as at least 30 minutes or more per week in the past six months, which may not be a high enough dosage and/or timeframe of practice among young adult collegiate women to see a true relationship with outcomes of mental health, body connection, and academic welfare. Further, yoga was operationalized as physical (āsana), rhythmic control of breath (prānāyama), and meditation (Dhyāna), which are only a few aspects of the overall practice. Given the narrower definition of yoga, potential associations with specified outcomes beyond physical forms, breath, and meditation may not be observed. Moreover, most students were unaware of the type(s)/style(s) of yoga they practiced, or they endorsed a more

active practice (i.e., Vinyasa flow). Few participants reported engaging in trauma-sensitive yoga (TSY) or trauma-informed yoga (TIY), a yoga practice geared towards individuals with traumatic experiences. Given that a portion of the collegiate women within this study have histories of interpersonal violence victimization, examining yoga methodology such as TSY and TIY may have a differential association with the outcomes of interest.

The overall model examining socio-demographics (i.e., race and ethnicity, sexual orientation, employment status), mental health service use, ACEs, and IPV types as predictors of yoga participation was insignificant, indicating an inadequate model fit; thus, no findings were concluded. These findings are contrary to adjacent literature in which white, college educated, younger to middle-aged women were more likely to be lifetime yoga practitioners than non-practitioners (Cramer et al., 2018; Moonaz et al., 2021), and young adults with ACEs were more likely to practice yoga than their peers with no ACEs (Neumark-Sztainer et al., 2020). Re-specification of the model is necessary to examine missing, relevant indicator variables that share a relationship with yoga participation. For example, although gender identity and expression were not included within this analysis, given the item's little variability, Neumark-Sztainer and colleagues (2020) reported on frequent yoga practice among young adults of another gender than man or woman. Additional predictors of Complementary and Alternative Medicine (CAM), including yoga, among college students may be missing within the model, including international student status, family use and non-use of CAM, and students' attitudes towards CAM (Versnik Nowak et al., 2015).

Further, health status was not included in this study, for which better health was positively associated with having practiced yoga (Cramer et al., 2018). However, directionality cannot be assumed, as individuals elsewhere reported seeking yoga for pain, mental health, and general wellness (Moonaz et al., 2021). Motivations for yoga participation need further exploration among this population of young adults, along with other predictors of yoga participation.

Body Connection

Students with higher levels of body connection (i.e., awareness) also reported moderately strong and higher scores of academic well-being. This finding is novel in that the observation is not previously examined or reported on in the literature. Although I cannot make conclusions based on this study's methods, I postulate that students who are more in tune with their internal sensations may be better able to utilize those interoceptive bodily awareness skills to self-regulate their bodily sensations, thoughts, and emotions, which is discussed in prior literature (Price & Hooven, 2018; Sullivan et al., 2018). Thus, students with higher levels of body awareness and self-regulation may fare better academically.

The body connection model also approached near significance ($F(1, 75) = 1.732$, $p = .07$). Precisely, students of another race and ethnicity (i.e., Multi-racial, Black, race and ethnicity not listed or incorrectly specified), compared to white students, reported lower scores on body connection ($p = .07$). Further, students of a sexual orientation including asexual, multiple sexual identities, pansexual, queer, or not listed or incorrectly specified ($p = .05$), compared to heterosexual students, and students who practiced yoga

30 minutes or more per week in the past six months, compared to those who did not, reported higher scores of body connection ($p < .02$).

Summary

Findings from this study further contribute to the body of literature on ACEs, IPV victimization, mental health, body connection, academic well-being, and yoga participation among young adult collegiate women. Three main takeaways from this study are as follows. One, an emergent finding across the data includes employment as an essential factor among young adult collegiate women's mental health and a lower likelihood of experiencing IPV emotional abuse. Second, a novel finding includes the aspect of body connection and educational welfare, specifically the positive relationship between higher levels of body awareness and higher scores of academic well-being. Third, and last, findings build upon prior literature on the relationship between interpersonal violence, specifically childhood abuse and harassment by an intimate partner, and young adult collegiate women's mental health.

Strengths and Limitations

There are several strengths within this research study, one being the inclusion of standardized instruments that accessed multiple types of interpersonal violence experiences, specifically ACEs and IPV. The Composite Abuse Scale also measured various types of IPV abuses (i.e., emotional; physical; harassment; severe abuse, including sexual abuse), as opposed to an overall presence or absence. Moreover, given the scant literature on ACEs and IPV-related impacts on students' education, this study included a measure assessing academic well-being. As such, this research enhances the

limited scholarly literature on the associations between interpersonal violence experiences and academic well-being.

This study included young adult collegiate women and examined multiple mental health constructs, including symptoms of PTSD, depression, and anxiety, as well as the construct of body-connection, which is novel to the body of literature. Also unique to this study is the application of a yoga feminist-trauma framework (Brown, 2004; Wilkin & Hillock, 2014), which contributes to the application of theory within this area of research and practice. Lastly, the relationship between yoga and students' mental health, body connection, and academic well-being, along with predictors of yoga participation, fills a gap among this population of students with interpersonal violence experiences and furthers the limited body of literature within this important area of study.

Several limitations within this research study should be considered when interpreting the study's findings and implications. This study utilized a cross-sectional methodological design, which precluded the ability to make stronger, broader statements regarding the study's findings, including relational direction among observations (i.e., cause and effect). Also, there were significant differences between the overall sample and the sub-sample on indicators of race and ethnicity, mental health service use, and academic well-being, which could have influenced the observances on the outcomes. Further, although the overall study sample was seemingly more representative concerning students' race and ethnicity and sexual orientation, compared to the larger body of literature, students' gender identity was more reflective of the existing scholarly literature in which research among cis-gender women students is largely overrepresented. Further, the sub-sample was primarily comprised of white, straight/heterosexual, and cisgender

women. Despite my efforts, the study inadvertently perpetuated the stereotypes and exclusionary portrayal that dominate the body of literature.

The concern as to the lack of diverse representation may be further influenced by findings regarding perceptions of yoga as an exclusionary practice that is for heterosexual white women with flexible bodies (Berila et al., 2016; Murphy et al., 2019), as well as a practice with a history of victimizing its community members, particularly women (Rousseau et al., 2019). However, recent research (Neumark-Sztainer et al., 2020) demonstrated a more diverse population of young adult yoga users in relation to race and sexual orientation that, to my knowledge, has not been previously discovered.

Researchers also found that of the young adult yoga users who ever practiced yoga, within the past year, on average, 36% practiced yoga for less than 30 minutes per week, 21% practiced yoga for 30 minutes to less than one hour per week, and 43% practiced yoga for one hour or more per week (Neumark-Sztainer et al., 2020). Compared to this study, of the collegiate young adults who practiced yoga weekly within the last six months, 6% practiced yoga less than 30 minutes per week (lower average than Neumark-Sztainer et al., 2020), 38% practiced yoga 30 minutes to less than one hour per week, and 56% practiced yoga one hour or more (higher average than Neumark-Sztainer et al., 2020).

Threats to Valid Inference Making

Statistical Conclusion Validity. Several threats or common "noise" that may have existed and impacted my ability to make valid statistical conclusions are outlined below (Kennedy & Edmonds, 2012; Kirk, 2012). Although the study's sub-sample size was adequate according to the a-priori power analysis that was conducted, the sample

size may still have been inadequate; thus, leading to a type II error. Sample size is linked to power, which is a test's ability to find a true effect of a certain size. Thus, larger samples possess more power to detect a true effect and vise-versa for small samples (Field, 2013). Further, prior research demonstrated that with smaller sample sizes, over estimation of coefficients can occur compared to the true population value found from larger sample sizes (Nemes et al., 2009). The implications of a small sample size may also be evident in the wider confidence intervals of the IPV estimates within this study; thus, potentially indicating higher variability and margin of error (see Table 9 and 10).

Second, a lack of reliable measures could have posed a threat to this study's results. However, I actively tried to minimize measurement error as I intentionally employed measures that demonstrated, at minimum, adequate measurement internal consistency reliability and were utilized among similar populations and contexts. Further, standardized measures within this study demonstrated high reliability; thus, reducing the threat to valid inference making. Lastly, random heterogeneity of participants could have impacted results; specifically, participants' idiosyncrasies and subject behavior (e.g., tiredness, distraction) could have influenced their interaction with the measures.

To reduce threats to statistical conclusion validity, as outlined by Kirk (2012), specific actions were taken to mitigate low statistical power, such as running an a-priori power analysis. Adherence to and the potential violations of statistical assumptions were examined (Cohen et al., 2015; Field, 2013). Guided by Enders (2010) and IBM (2022), potential missing data were assessed and handled, and listwise deletion was used given that the data were missing completely at random (MCAR). Confounding factors were also controlled for and appropriate test statistics were utilized.

Internal Validity. Several factors could have influenced my ability to conclude that the independent variables, in and of themselves, were associated with variance in the dependent variables (Kennedy & Edmonds, 2012; Kirk, 2012), particularly the main variable of interest, yoga participation. One of those factors included instrumentation. There is the possibility that participants misunderstood the survey questions or that the questions were poorly written, leading to inaccurate answers. However, to mitigate this occurrence, before publicly disseminating the survey, precautions were taken to cross-check and pre-test the overall instrument among colleagues and current and/or recent college graduates. The instrument was assessed for potential issues and misunderstandings, including survey fatigue; poorly written, exclusive, and potentially re-traumatizing language; and confusing measurement items and prompts. Additionally, recent evidence has suggested measurement invariance of the Generalized Anxiety Disorder-7 (GAD-7) instrument based on college students' sexuality and gender, specifically inflated scores, which should be considered when interpreting the study's findings (Borgogna et al., 2021).

Precautions were also taken to reduce re-traumatization, given the intimate nature of the survey questions. Specifically, two times throughout the survey, students were prompted with the following script, "the questions may bring up uncomfortable thoughts, emotions, and/or physical sensations. You may find it helpful to take a break, gather a drink of water, or stretch. If you are so uncomfortable or distressed that you cannot continue, you can stop the survey in its entirety." If participants needed support, they were given the option of downloading an on-and-off campus safety and health-related resource list and given the contact information for the university and a crisis hotline.

Depending on the feedback from the pre-test, changes were made to enhance the internal validity of the instrument. Validated measures with demonstrated strong psychometric properties, when at all possible, were also utilized to ensure that the constructs were accurately and most precisely measured and to reduce inflating the estimate of the error variance, which can result in a type II error (Kirk, 2012).

Response bias was also a potential issue. Although patterns of missing data were not found, individuals may have skipped questions that were uncomfortable to answer or due to disinterest, boredom, or exhaustion. Individuals were encouraged to answer in agreement with how they thought or felt, to try their best to answer the questions in their entirety and to take breaks and finish later if needed. There is also the possibility of social acceptability bias in that individuals responded to the measurements based on how they perceived others would want them to answer. This phenomenon may have been exacerbated given the intimate nature and stigma of ACEs, IPV, and mental health challenges. However, social desirability may have been lessened as the survey was conducted online and students were encouraged to complete the survey privately.

Additionally, given my capacity (e.g., monetary, time), several participant characteristics and constructs were not included in the instrument; thus, their potential explained variance with the outcomes were not controlled statistically. Specifically, the analytical models tested within this study did not include other IPV types, such as reproductive, academic, severe abuse (including sexual abuse), and technology-facilitated abuse, or other types of ACEs, such as household dysfunction and neglect, or other types of violence (e.g., peer, community, collective) (Hamby et al., 2021; World Health Organization [WHO], 2018). IPV victimization and ACEs frequency and impact,

polyvictimization (Brewer et al., 2018; Marganski et al., 2022; Swan et al., 2021), or somatic symptoms related to interpersonal violence victimization (Hesmati et al., 2021; Pattison, 2021) were not examined.

Attending college can be difficult with high stress, sleep difficulties, and headaches/migraines that were reported to influence students' academics (American College Health Association-National College Health Assessment III, 2021), which were not included in this study, along with discrimination, unsafety, and victimization related to racism, xenophobia, homophobia, biphobia, transphobia, and disability among college students. The above factors, in and of themselves, may be associated with adverse mental health, body connection, and academic well-being. This is especially important given that prior research demonstrated that trans/gender non-conforming students reported substantially higher percentages of microaggressions (9.8%) and discrimination (8.3%) that negatively impacted their academic performance than their cis-men (1.6%, 1.8%) and cis-women peers (3.1%, 2.7%) (ACHA, 2022). Also, due to concerns regarding the survey length (i.e., the average time of completion), some measures necessitated removal (i.e., food security, access to medical services, reproductive coercion, The Medical Symptoms Checklist, physical activity), which may have impacted the study's ability to adequately account for model covariates.

External historical events that occurred near or during survey completion could have impacted point-in-time observations. Most notably, the recent global COVID-19 pandemic, national riots, and the January 6, 2021, insurrection at the U.S. Capitol could have introduced potential influences, or "noise," into the study. Specifically, due to these historical influences, participants may have experienced increased stress, distress, trauma,

physical illness, injury, differences in "typical" IPV-related abuse experiences (e.g., more technology-facilitated and/or in person abuse), and variations in their yoga practice behavior or regimen (e.g., more use of online classes than in-person, less frequent practice due to stress or inaccessibility). For example, Wilson and colleagues (2021) found that U.S. college students, primarily women, reported less physical activity and increased stress and depressive symptoms related to COVID-19 circumstances compared to pre-COVID-19.

Although COVID-19 caused gyms, classes, and yoga studios to temporarily or permanently close, implications, including students' yoga practice, may not have been impacted. Specifically, Neumark-Sztainer and colleagues (2018) found that among young adults (mean age = 31 years), more than half practiced yoga at home (58%), while less than half practiced yoga at the gym/fitness center (31%), at a yoga studio (40%), or at another location (4%) (participants could select multiple responses). Similar findings emerged in this study as the majority of students (80%) reported that they typically[13] practiced yoga within a personal residence or home; followed by a university, campus studio, or classroom (28%); off-campus studio or classroom (23%); at the gym, exercise facility, or recreation center (23%); outside in nature or at a park (12%); and at a formal organization or center (e.g., religious or spiritual center, professional building or business, hospital or clinic; 4%; participants could select multiple responses).[14] Given that the majority of the sub-sample typically practiced yoga at home, although I cannot

[13] Students were asked "where do you typically practice yoga?" To note, there was no specification as to pre-COVID-19.

[14] Some students reported that where they typically practiced yoga was not listed or incorrectly specified (2.2%).

make causative claims, I theorize that the implications of COVID-19 on students' *access* to yoga may have been less.

Further, as evidenced in this study, 44% of participants reported that COVID-19 impacted where they typically practiced yoga. Of those students, how COVID-19 impacted their practice included (a) 68% practiced more yoga within their residence or home, (b) 54% felt less safe or no longer felt safe in the space or facility where they typically practiced yoga, (a) 46% reported that the space or facility where they typically practiced yoga had temporarily or permanently closed, and (d) 10% practiced more yoga outside in nature or at a park. Overall, the above phenomena could have altered the study's findings by conflating observances of IPV abuses and/or yoga participation related to historical events and the relationship with participants' self-reported adverse mental health, body connection, and academic well-being.

External Validity. One of the main issues within this study is transferability, which is the ability to generalize (or transfer) the study's findings to a larger population with similar characteristics (Kennedy & Edmonds, 2012; Kirk, 2012). There are issues of valid inference making, mainly due to the utilization of a convenience sampling design which prohibits external generalizability of the findings outside of the sample's parameters (Blair & Blair, 2015). Additionally, this study is limited to young adult collegiate women with histories of ACEs and IPV victimization who attended a four-year university in the Southwest region of the U.S. and focused primarily on yoga participation.

As such, these factors impact external validity and the ability to make generalizations to (a) a larger population of people or students with ACEs and IPV

experiences (e.g., rural and/or a non-four-year university), (b) individuals younger than 18 or older than 24 years of age, (c) individuals with other socio-demographics who have histories of ACEs or IPV (e.g., non-women, youth) or additional types of victimization within and outside of an interpersonal relationship, (d) other timeframes of IPV, ACEs victimization, and yoga, as well as frequency of yoga practice, and (e) other mind-body practices (e.g., Mindfulness-based Stress Reduction). Also, variations in recruitment and/or survey completion and context-dependent mediating variables could have led to differing outcomes and influenced the transferability of findings from the sample to the larger population. As such, study inferences cannot be generalized beyond the parameters of the sample. However, findings from this study provide a rationale for examining indicators of mental health, adverse childhood experiences, and IPV within related populations. Lastly, multiple-treatment interference could have threatened external validity, in which diffusion with other health and wellness modalities (e.g., utilizing massage therapy) could have created a type-II error.

About the Author

I am a white, educated, heterosexual, Millennial, cis-gender woman born in the U.S. and grew up in the Southwest. I am also a social worker and yoga facilitator. These few aspects of my identity and life experiences influence my research, teaching, and practice. For example, my work may perpetuate dominant stereotypes, as well as cultural appropriation of yoga through, for example, my modern, Western, conceptualization of yoga, ACEs, IPV, race, ethnicity, gender identity, and sexual orientation. This includes the philosophical assumptions, research questions asked and not asked, methodologies applied, and interpretations of observations that underpin my work (Berila et al., 2016).

Throughout this research process, I actively engaged in reflexivity, as I continuously self-examined my place within the research and how cultural subjectivity, including my position within socio-political structures, my intersecting identities, power, privilege, oppression, bias, experiences, and space, shaped my understanding, viewpoints, and construction of knowledge development (Sprague, 2016). For example, I conceptualized yoga within a Western frame, thus, I emphasized only a few limbs of the total, traditional, eight-limbed path. As such, this contributed to the cultural appropriation and commodification of yoga and diminished the potential capacity (or effects) that could have been observed if yoga included all eight limbs. Further, my choice to include standardized and medicalized measures that assessed mental health, body connection, and academic well-being, as well as to not include measures of resilience and self-efficacy, was a choice with potential socio-political repercussions within science, practice, and education, including potentially pathologizing and stigmatizing normal responses and behavioral adaptations to interpersonal violence experiences.

Lastly, my professional and personal history impacted the direction of inquiry for this dissertation. Specifically, I was previously the coordinator for the Fostering Advocates Arizona (FAAZ) Young Adult Leadership Board with Children's Action Alliance and worked with young adults (14 to 26 years of age) who were aging out of foster care on national advocacy initiatives. I am also a certified yoga instructor primarily trained within the school of Ashtanga yoga and Trauma Center Trauma-Sensitive Yoga. I also experienced the transformative mental and physical health and spiritual benefits and growth that can accompany yoga and other mind-body practices. I am also a student at Arizona State University, Watts College of Public Service and Community Solutions, in

the School of Social Work. Within the school, I am a student and employee within the Office of Gender-based Violence. The above aspects of my life experiences guided the direction of this study, including examining the yoga practice and abuse experiences of this population of young adult collegiate students.

Implications

Policy

Findings from this research study can ignite policy and procedural changes within the university setting by enhancing awareness of students' collective experiences; specifically, the adverse outcomes of collegiate women broadly, with an emphasis on women with histories of adverse childhood experiences and/or abuse by their intimate partner. This study reinforces university policies that support students with access to on-and-off campus employment, including remote employment, to support collegiate women's mental health broadly, with an emphasis on those with histories of interpersonal violence victimization.

Further, given that findings indicate a relationship between higher levels of body connection (i.e., interoceptive or bodily awareness) and better academic well-being, universities may consider revising their policies to better support students in accessing evidenced-based, integrative, complementary and alternative medicine (CAM) and wellness services that facilitate aspects of body awareness. University policies should reflect the desires of their student body, as college students demonstrate use of CAM, including yoga, for medical purposes and would utilize more CAM treatment if covered under insurance (Nguyen et al., 2016). One application of CAM may be mindfulness-based interventions, such as mindfulness-based stress reduction, which incorporates

Hatha yoga, and demonstrates successful outcomes for college students' mental health (SAMHSA, 2021; Huang et al., 2018). Policies should emphasize evidenced-based, integrative, services that are accessible, inclusive, and are representative of all students (e.g., affordability, location, race, ethnicity, gender identity and expression, sexual orientation, disability, representation of instructors and peer supports) (Berila et al., 2016).

Although this study did not shed light on the benefits of yoga related to students' mental health, body connection, and academic well-being, or predictors of yoga participation, more rigorous future quantitative research may have greater policy implications, as well as qualitative research that explores students' experiences of interpersonal violence victimization and yoga participation firsthand. Potential implications include enhancing training materials and procedures for university personnel (e.g., yoga and mindfulness instructors and student employees) on how to better serve and support the health and safety of young adult women in the university setting.

Research

Employment. Expanding on findings from Luo and colleagues (2020), observations from this study further support the need for additional empirical research on the relationship between employment and collegiate students' mental health, academic wellbeing, and experiences of ACEs and IPV victimization. Exploring what aspects of employment are beneficial, such as social, financial independence, self-esteem, and/or networking is essential in understanding how to best support the welfare of collegiate women students. Research on potential variations of on-campus, off-campus, and/or remote employment and students' outcomes may be a novel finding and contribution to

the body of literature. Additionally, measures of IPV within this study did not account for economic forms of abuse, such as financial and academic. Thus, building off a scant body of literature (Harned, 2001; Mounsey et al., 2013; Voth Schrag, 2019) more robust empirical examination is needed of economic abuse among young adult collegiate students from community and four-year colleges.

Body Connection. Empirical literature on body-connection among young adult collegiate women is a missing piece of the puzzle to better understanding implications of interpersonal violence, mental health, and academic outcomes. Specifically, given this study's findings of a positive association between body-connection and academic well-being, future research needs to examine body-connection as a mediator between yoga and academic well-being. Also, given the study's near significant findings, students' socio-demographics (e.g., race and ethnicity, sexual orientation) and yoga participation related to measures of body connection, along with specific aspects of body connection such as awareness and dissociation, are an area of future inquiry.

Yoga Participation. Although the main variable of interest within this study, yoga participation, was not a significant predictor of students' mental health, body connection, or academic well-being, and there were no significant predictors of yoga participation, several lessons can be learned from this study and act as a springboard for future research. Prospective studies may benefit from utilizing larger sample sizes and more rigorous methodology, such as conducting a pilot study or small-scale randomized control trial. This study examined yoga participation among self-reported novice yoga practitioners who practiced less frequently (i.e., at least 30 minutes per week in the past six months), which is an important contribution to the literature. However, future

research would benefit from examining yoga participation among college women with a longer duration and a higher frequency of dedicated yoga practice. There is also merit in examining potential differences in outcomes among these groups.

A greater need also exists to examine feasibility related to students' yoga practice frequency, duration, and methods of instruction; accessibility related to the location of practice and styles of yoga; inclusivity and safety; as well as the different components of yoga and their varying effects on student outcomes (Matko et al., 2021; Nanthakumar, 2020). These are areas in which qualitative research could help fill. For example, through interviews or focus groups, researchers may examine the frequency, duration, and mode of yoga practice that is realistic for students given their demanding schedules and multiple commitments (e.g., school, employment, extracurricular activities). Additionally, given that participants in this study reported on COVID-19's influence on their yoga participation, an essential area of future examination is the moderating effect of COVID-19, specifically examining differences in outcomes based on the degree to which the pandemic impacted students' yoga participation (e.g., frequency).

Future research would also benefit from building off a critical limitation within this study, that is yoga's operational definition is characteristic of yoga in the Western world, including research and practice. Thus, this research contributes to the cultural appropriation of yoga by emphasizing only a few aspects or limbs (i.e., physical/āsana, rhythmic control of breath/prānāyamā, meditation/Dhyāna) without recognizing and studying the entire, traditional, eight limbs[15] or paths of yoga. As such, critical aspects of

[15] "1. Yama (universal moral commandments); 2. Niyama (self-purification by discipline); 3. *Ā*sana (posture); 4. Prān*ā*yāma (rhythmic control of the breath); 5. Pratyāhāra (withdrawal and

yoga's whole system, particularly yoga's ethics, are less examined within the totality of the scholarly literature (Matko et al., 2021). Future studies among collegiate young adult women with experiences of ACEs and IPV need to examine the full spectrum of yoga's practices along with the differing components, and their unique and collective implications (Matko et al., 2021; Park et al., 2018).

For example, a yoga intervention based within a yoga feminist-trauma conceptual framework, as outlined in this paper, needs to holistically address trauma and violence prevention and response that is grounded within the breadth of the yoga principles, including, but not limited to, yamas (social codes), Ahimsa (non-violence), Satya (truthfulness, honesty), Asteya (non-stealing), Brahmacharya (sexual control, respect, wellness), and Aparigraha (non-possessiveness, non-domination). This includes emphasizing yoga's ethics and mind-body-spiritual connection, consciousness raising of individual and collective suffering, and examining and addressing violence through yoga within a political, collective, and embodied framework, along with postures, breath, and meditation. Further, mindfulness, an integral aspect of yoga, demonstrates promising findings in relation to college students' mental health (SAMHSA, 2021) and childhood and adulthood trauma exposure (Dolbier et al., 2021; Fitzgerald and Kawar, 2022; Tubbs et al., 2019) and is worthy of further study among this at-risk group of college students.

Additionally, this study examined yoga broadly, with most participants practicing Vinyasa flow (44.1%) or unsure of the style of yoga practice (48.4%). However, given the nature of ACEs and IPV victimization, young adult collegiate women may fare better

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emancipation of the mind from the domination pf the senses and exterior objects); 6. Dhārana (concentration); 7. Dhyāna (meditation), and 8. Samādhi (a state of super consciousness brought about by profound meditation)" (Iyengar, 1966/1979, p. 21).

with a trauma-informed yoga practice, such as Trauma Center Trauma-Sensitive Yoga (Emerson & Hopper, 2011; Emerson et al., 2009), as is shown among similar populations with interpersonal violence experiences (van der Kolk et al., 1996/2007; West et al., 2017). Lastly, within this study, being that the hypothesized predictors of yoga participation were insignificant, future research may benefit from further assessing potential motivations for practice adoption and maintenance, including exercise, spirituality, relief from stress and mental health ailments (Park et al., 2016), gender identity and expression, and socio-economic status (Neumark-Sztainer et al., 2020). Although ACEs were not a significant predictor of yoga participation within this study, contradictory findings were reported by Neumark-Sztainer and colleagues (2020); thus, warranting further investigation. Doing so may provide greater insight into potential factors that may impact study recruitment and attrition.

Practice. This study strengthens empirical literature by providing practitioners and clinicians within social work, and across disciplines, with an enhanced understanding of the mental health and academic state of young adult collegiate women, especially those with histories of interpersonal violence. Among practitioners and clinicians working with young adult women is post-secondary education with experiences of IPV victimization, professionals may consider employment as an important potential support for students. Further, study results highlight the importance of considering the implications of interpersonal violence victimization when examining the mental health and academic well-being of young adult collegiate women students; thus, strengthening the justification for accessible on-campus, off-campus, and remote mental and physical health services.

Moreover, findings may provide practitioners and clinicians with an enhanced understanding of students' body connection (i.e., interoception, bodily awareness) and academic well-being. Therapeutic and wellness services within college campuses, along with programs specific to mental health and interpersonal violence awareness, prevention, and response, may integrate evidenced-based, interventions as an adjunct to standard practice that emphasize the mind-body connection and interoception, such as mindfulness-based interventions (Emerson, 2015; SAMHSA, 2021; Huang et al., 2018). This integration is theorized to be feasible to implement as mindfulness-based interventions do not necessarily require a mat or props.

Further, mindfulness and yoga can be thought of as a means of primary, secondary, and tertiary prevention against the occurrence and aftermath of ACEs and IPV among young adults. One avenue may be for high schools and universities to employ young adult peer leaders, like the MYPATH model (Barr et al., 2022), to implement and lead a program that integrates a trauma-informed yoga feminist-trauma conceptual framework as a means of individual and collective consciousness-raising, violence prevention, and a mind-body therapeutic response. Specifically, students could receive training in trauma-informed mindfulness and yoga, preferably through certification as a means of economic support, and educate their peers on feminism, trauma, and the ethical principles of yoga, while also teaching cognitive, somatic, and emotional regulation skills through postural, breath, and meditation practices.

Given this study's focus on interpersonal violence victimization, specifically IPV and adversities that occur in childhood, a second avenue for primary, secondary, and tertiary prevention may be for agencies, such as domestic violence shelters, to incorporate

parent and child trauma-informed complementary and alternative medicines and modalities, such as mindfulness and yoga practices, as family treatment. By doing so, the parent and child(ren) unit may learn and practice cognitive, somatic, and emotional co-regulatory skills and engage in one-on-one time with one another, which may potentially enhance the quality of their child-parent relationship (Harrison et al., 2004), as well as support their mental and physical health, and overall well-being (Thygeson et al., 2010).

Education

Findings from this study support knowledge transfer from research to the classroom setting. This study's application of a yoga feminist-trauma conceptual framework (Wilkin & Hillock, 2014) provides the social work field, and across academic disciplines, with an enhanced understanding of interdisciplinary collaboration. Students within specialized graduate certificate programs, such as domestic violence, integrative health, and women and gender studies, can learn about the interplay between trauma and feminist theory, social justice, ACEs, IPV, and mind-body-oriented practices (Wilkin & Hillock, 2014).

Further, this study informs social work education by exploring the use of mind-body-oriented mindfulness approaches and associations with mental health and academic well-being among young adult collegiate women. University faculty may enhance their awareness of the mental health and academic challenges that students face and advocate for more comprehensive complementary and alternative medicine and wellness services on students' behalf (Nguyen et al., 2016). Lastly, considerations may be made as to following suit of other post-secondary institutions offering yoga courses, and other mindfulness-based practices, for college credit (Berent, 2014).

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APPENDIX A

RECRUITMENT COMMUNICATION TEMPLATES

EMAIL TEMPLATE 1

SUBJECT: Students' Health and Well-being Study

Hello,

We are a team of researchers in the Watts College of Public Service and Community Solutions, School of Social Work. We are conducting a study to learn about the mental health, physical health, and the academic and relational well-being of college students.

We are recruiting women who are part-time or full-time ASU students and ages 18-24 to participate in our study.

If you qualify for our study, you will be invited to participate in a one-time online survey that takes approximately 15-20 minutes to complete. Participation is voluntary.

Participants who complete the survey will receive a **$5 gift card**!

Please complete this brief survey to see if you are eligible to participate. You can also access the survey using the QR code below:

Please direct all inquiries to a member of our study team, Andrea Kappas, at akappas@asu.edu or (480) 744-6217.

An Institutional Review Board responsible for human subjects research at Arizona State University reviewed this research project and found it acceptable, according to applicable state and federal regulations and University policies designed to protect research participants' rights and welfare.

EMAIL TEMPLATE 2

SUBJECT: Students' Health and Well-being Study

Hello,

A doctoral student at the ASU School of Social Work is seeking participants for a research study.

The study is in the form of a one-time online survey. Women will be asked questions about their mental health, physical health, academic and relational well-being.

Eligibility includes part-time or full-time ASU students, ages 18-24, who are women.

Participants who complete the survey will receive a **$5 gift card**! The survey takes approximately 15-20 minutes to complete. Participation is voluntary.

To be considered as a participant, please complete this brief survey. You can also access the survey using the QR code below:

For more information, please contact a member of our study team, Andrea Kappas, at akappas@asu.edu or (480) 744-6217.

An Institutional Review Board responsible for human subjects research at Arizona State University reviewed this research project and found it acceptable, according to applicable state and federal regulations and University policies designed to protect research participants' rights and welfare.

APPENDIX B

RECRUITMENT FLYERS

Women ages 18-24 who are ASU students

Health & Well-being Study

Our aim is to learn about the mental health, physical health, academic and relational well-being of college students who are women and 18-24 years of age.

Step 1
Go to the survey
http://links.asu.edu/healthwellbeingstudy

Step 2
Check eligibility
Women, age 18-24, who are current full-time or part-time ASU students

Step 3
Complete the survey

Step 4
$5 Gift Card
Complete the survey and receive a $5 gift card! Various vendors to choose from (e.g., Target, Amazon, iTunes)

LGBTQ inclusive

ASU School of Social Work
Arizona State University

Questions?
Please contact a member of our research team:
Andrea Kappas
akappas@asu.edu
480-744-6217

Social Media Ad (instructions): Screenshot the document and in your social media platform crop the yellow ad, then copy and paste the bottom text as your caption! (will need to shorten the bottom text for Twitter)

If your answers are "yes," you are invited to participate in a study by completing a one-time survey. Complete the survey and receive a $5 gift card. The study aims to learn about the mental health, physical health, academic and relational well-being of ASU students who are women and 18-24 years of age.

Access the survey here: http://links.asu.edu/healthwellbeingstudy

If you have questions, please contact a member of our research team:
Andrea Kappas
akappas@asu.edu
480-744-6217

Women ages 18-24 who are ASU students

Health & Well-being Study

Our aim is to learn about the mental health, physical health, academic and relational well-being of college students who are women and 18-24 years of age.

Step 1
Go to the survey

http://links.asu.edu/healthwellbeingstudy

Step 2
Check eligibility

Women, age 18-24, who are current full-time or part-time ASU students

Step 3
Complete the survey

LGBTQ inclusive

Step 4
$5 gift card

Complete the survey and receive a $5 gift card! Various vendors to choose from (e.g., Target, Amazon, iTunes)

Questions?

Please contact a member of our research team:

Andrea Kappas
akappas@asu.edu
480-744-6217

ASU School of Social Work
Arizona State University

PARTICIPATE IN A STUDY ON HEALTH & WELL-BEING

$5 GIFT CARD

OUR AIM IS TO LEARN ABOUT THE MENTAL HEALTH, PHYSICAL HEALTH, ACADEMIC AND RELATIONAL WELL-BEING OF COLLEGE STUDENTS WHO ARE WOMEN AND 18-24 YEARS OF AGE.

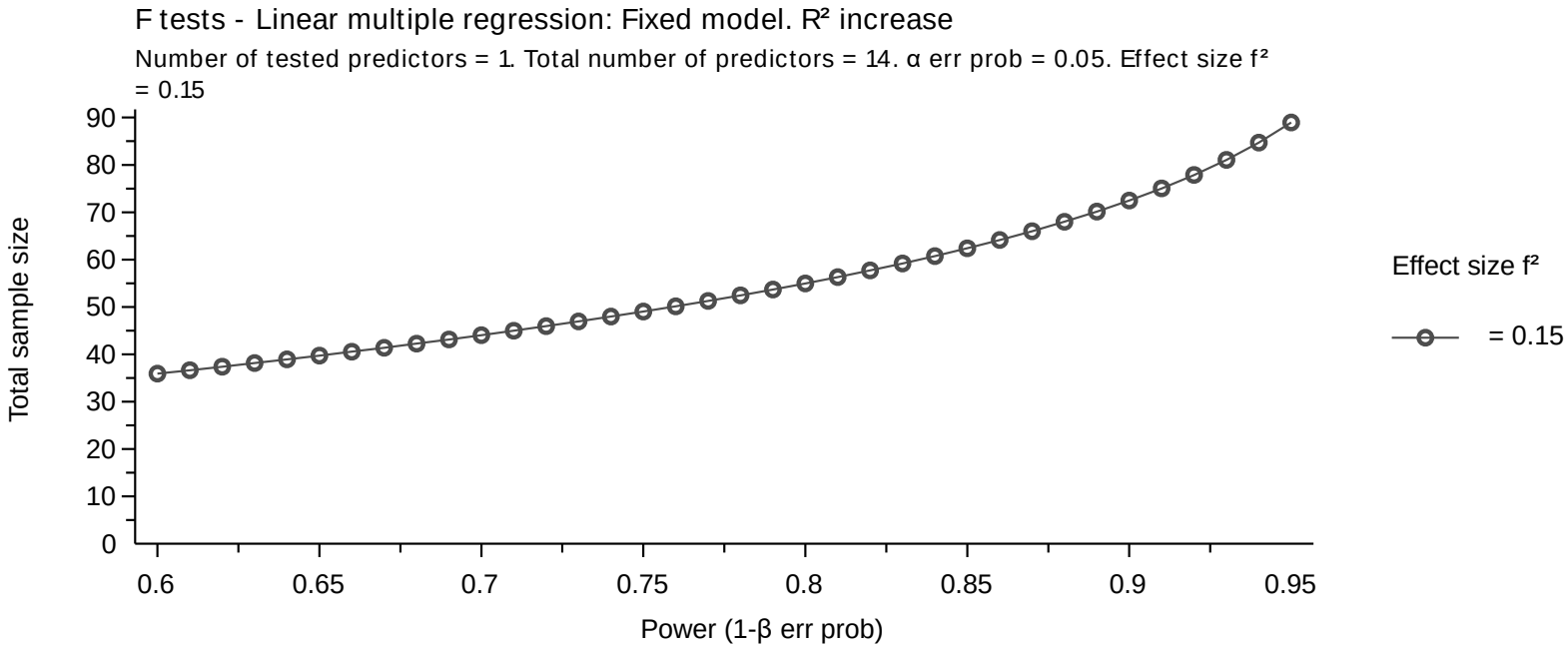
ACCESS THE SURVEY AND CHECK ELIGIBILITY USING THE QR CODE OR THIS LINK: HTTP://LINKS.ASU.EDU/HEALTHWELLBEINGSTUDY

LGBTQ inclusive

QUESTIONS? PLEASE CONTACT A MEMBER OF OUR RESEARCH TEAM
ANDREA KAPPAS
AKAPPAS@ASU.EDU
480-744-6217

APPENDIX C

POWER ANALYSIS


F tests - Linear multiple regression: Fixed model. R² increase
Number of tested predictors = 1. Total number of predictors = 14. α err prob = 0.05. Effect size f² = 0.15
Total sample size
90
80
70
60
50
40
30
20
10
0
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95
Power (1-β err prob)
Effect size f²
= 0.15

APPENDIX D

SCREENING AND CONSENT FORM

Screening/Consent

Survey Flow

Standard: Screening (4 Questions)

Branch: New Branch
If
If Are you currently enrolled (part-time or full-time) as a student at Arizona State University? No Is Selected

EndSurvey: Advanced

Branch: New Branch
If
If Are you a woman? No Is Selected

EndSurvey: Advanced

Branch: New Branch
If
If Are you 18-24 years of age? No Is Selected

EndSurvey: Advanced

Block: Consent (3 Questions)

Branch: New Branch
If
If Consent to Participate in Research Please read carefully, as the below content explain Continue with this study Is Selected

EndSurvey: Advanced
Page Break

Start of Block: Screening

Thank you for your interest in our study titled, "College Women's Mental Health, Physical Health, Academic and Relational Well-being." To start, we will need to ask you a few questions to make sure you meet the requirements to participate.

Are you 18-24 years of age?

- ○ Yes (1)
- ○ No (2)

Are you a woman?

- ○ Yes (1)
- ○ No (2)

Are you currently enrolled (part-time or full-time) as a student at Arizona State University?

- ○ Yes (1)
- ○ No (3)

End of Block: Screening

Start of Block: Consent

You are eligible to be in this study! Before you can proceed, please review the consent form below.

Consent to Participate in Research

Please read carefully, as the below content explains this study and your rights as a participant. At the end of this form, you will be asked whether or not you understand the research study and whether or not you agree to continue with the study.

Title of research study

College Women's Mental Health, Physical Health, Academic and Relational Well-being

Investigators

Primary investigator: Dr. Jill Messing, ASU School of Social Work
Co-investigator: Andrea Kappas, ASU School of Social Work

What is the purpose of this study?

The purpose of this study is to learn about the mental health, physical health, academic and relational well-being of college students who are women and 18-24 years of age. Before you can begin the survey, you will need to read this consent form, which will help you choose whether you would like to participate in this study.

How long will the survey last?

We expect individuals to spend approximately 20 minutes completing the one-time survey. The estimated timeframe includes reviewing the consent form, completing the survey, and filling out the incentive form. Will I be compensated for being in this study?

Participants who enroll and complete the survey will receive a $5 electronic gift card. They will be emailed the electronic gift card and have the opportunity to choose from various vendors (e.g., Target, Amazon, iTunes).

What happens if I say yes, I want to be in this research?

It is your choice whether you decide to participate in this study. If you do participate in this study, you will be completing a one-time online survey in Qualtrics. As such, you will create a unique self-identification code (ID). You will be asked to provide information about yourself, including, but not limited to, questions on socio-demographics, health care service use, childhood and intimate relationship experiences, mental and physical health, academics, and physical activity. Your participation and the information you provide in this study is confidential.

Once you are finished completing the survey questionnaire, you will be directed to a separate incentive form to enter your ID and contact information (i.e., email address), as participants who complete the survey will receive a $5 gift card. You will also be asked

whether you would like to be contacted by the research team for future research opportunities. Your incentive form, containing your contact information, will be saved separate from your survey answers to protect your identity. Lastly, you will receive a resource list of on-and-off campus safety and health-related resources.

What happens if I say yes, but I change my mind later?

Your participation in this study is voluntary. You can leave the study at any time and it will not be held against you. If you choose not to participate, it will not affect your current or future relations with the University. There are no penalties or loss of benefits for not participating or for discontinuing your participation.

What are the risks, discomforts, and potential benefits I may experience from being in this study?

There are a few risks to you if you join this study, (a) some of the questions include sensitive information. One risk is that you may feel that answering some of the questions is upsetting. If this happens, you do not have to answer that question(s) if you do not want to. You may skip to the next question, take a break, or stop the study in its entirety, (b) you may get tired or bored when completing the survey, and (c) although we protect your information, any time data is collected there is the potential risk for a data breach and loss of confidentiality.

We cannot guarantee any benefits to you or others for taking part in this research. However, possible benefits include, (a) you may be introduced to new on-and-off campus safety and health-related resources and (b) you may help us to better understand college students' mental health, physical health, and academic and relational well-being, for which findings may further develop an existing body of knowledge.

How will your study protect my information?

To help keep your information confidential, we strongly encourage you to complete the survey in a safe and private space and on a safe and private device. Although we take several precautions to keep your information protected, we cannot guarantee complete secrecy.

To safeguard your identity, the survey questionnaire containing your data will only include your participant ID. For compensation purposes, and if you would like to be contacted regarding future research, your email address will be collected on a separate incentive form that is not connected to the survey containing your data. Prior to distributing gift cards, the participant ID on your survey questionnaire and incentive form will be cross-referenced to confirm survey completion. Please note, authorized study investigators, who are involved in the study or who need to make sure the study is being done correctly, will see your information and will retain the confidentiality of your data. All of the information collected in this study will be saved on a password-protected

computer, Qualtrics, and the ASU cloud.

What happens to the information collected for the research?

Study results may be published in aggregate (i.e., data summaries) in reports, presentations, or publications; however, your participant ID will not be published. If you change your mind and do not want your information used for the study anymore, you can contact Dr. Jill Messing by phone at (602) 493-1193 or by email at jill.messing@asu.edu. However, if we have already collected and used the information you provided, the use of that information cannot be disregarded. Data from the survey questionnaires will be kept indefinitely, as it contains your participant ID and not any identifying information. After incentives are administered, and the study is complete, the incentive information will be destroyed.

Who can I talk to?

If you have questions, concerns, or complaints, please reach out to the research team including (a) the primary investigator, Dr. Jill Messing, at (602) 493-1193 or by email at jill.messing@asu.edu, or (b) a research team member, Andrea Kappas, at 480-744-6217 or by email at akappas@asu.edu.

This research has been reviewed and approved by the ASU, Social Behavioral Institutional Review Board (IRB); which, is an administrative body that protects the rights and welfare of human research participants by requiring the review and approval of research-related projects before and during implementation. You may talk to them at (480) 965-6788 or by email at research.integrity@asu.edu if: Your questions, concerns, or complaints are not being answered by the research team. You cannot reach the research team. You want to talk to someone besides the research team. You have questions about your rights as a research participant. You want to get information or provide input about this research.

Consent

You will now be asked a series of questions and whether or not you want to continue with this study. If you click “continue with this study,” you are thereby giving your permission to take part in this research and that the information in the consent document, and any other written information, was accurately explained to and understood by you, and that your consent was freely given. By clicking "continue with this study," you thereby agree to the below: I am being asked to participate in a research study comprised of a one-time online survey in Qualtrics. I do not have to participate, I do not have to answer any questions that I do not want to answer, and I can quit anytime. I have been advised to complete the survey in a safe and private space and on a safe and private device. If I have any questions, concerns, or complaints, I can reach out to the research team and/or the ASU Social Behavioral IRB, and the contact information for both entities are provided in this form. The incentive for enrolling in this study and completing the

survey is a $5 gift card. I am 18-24 years of age, a woman, and currently enrolled (part-time or full-time) as an Arizona State University student. I want to participate in this research study.

○ Continue with this study (11)

If you do not wish to continue with this study, please exit by closing the browser tab/window.

We sincerely appreciate your time and interest in our study. Before you go, we provide everyone with an on-and-off campus safety and health-related resource list. We sincerely appreciate your participation in our study.

End of Block: Consent

APPENDIX E

SURVEY QUESTIONNAIRE

Dissertation Survey

Survey Flow

Standard: Block 1 - Socio-demographics (26 Questions)
Standard: Block 2 - Mental Health Service Use (3 Questions)
Standard: Block 3 - Yoga Use (19 Questions)
Standard: Block 4 - ACEs (3 Questions)
Standard: Block 5 - IPV CAS (2 Questions)
Standard: Block 6 - IPV DDA (3 Questions)
Standard: Block 7 - BDSM (1 Question)
Standard: Block 8 - Mental Health (5 Questions)
Standard: Block 9 - Body Connection (1 Question)
Standard: Block 11 - Academic Wellbeing (2 Questions)
Standard: Block 12 - Additional (1 Question)
Standard: Block 13 - End of survey (1 Question)

Branch: New Branch
If
If You have now reached the end of the survey. We appreciate your participation in our study. Please... Do not continue to the next section, I don't want to receive a gift card Is Selected

EndSurvey: Advanced

Branch: New Branch
If
If You have now reached the end of the survey. We appreciate your participation in our study. Please... Continue to the next section to receive my gift card Is Selected
EndSurvey: Advanced

Page Break

Start of Block: Block 1 - Socio-demographics

Before we can begin, please enter an ID number, unique to you, using the following information below. All letters should be capital. You will need to use this ID number again:

1. First letter of your birth month
2. First letter of the street name you currently live on
3. Letter of your middle initial, if you don't have a middle initial enter X
4. Number of siblings
5. The last number of your phone number

_____

We will start by asking you some demographic questions about yourself.

How old are you?

▼ 18 (0) ... 24 (6)

How do you describe your racial or ethnic background?

- ○ American Indian (9)
- ○ Alaska Native (8)
- ○ Asian (7)
- ○ Black or African American (6)
- ○ Hispanic or Latinx (5)
- ○ Native Hawaiian (4)
- ○ Other Pacific Islander (3)
- ○ White (2)
- ○ Multiracial (1)
- ○ My racial or ethnic background is not listed above, or is incorrectly specified (0)

Display This Question:
If How do you describe your racial or ethnic background? = Other Pacific Islander

You answered "Other Pacific Islander." Please specify:

_____

Display This Question:
If How do you describe your racial or ethnic background? = Multiracial

You answered "Biracial or Multiracial." Please describe:

_____

Display This Question:
If How do you describe your racial or ethnic background? = My racial or ethnic background is not listed above, or is incorrectly specified

You specified that your racial or ethnic background is not listed above, or is incorrectly specified. Please specify:

_____

What is your religion, belief system, spirituality, and/or philosophy?

- ○ Atheist (20)
- ○ Agnostic (19)
- ○ Bahai (18)
- ○ Buddhist (17)
- ○ Catholic (16)
- ○ Chinese Folk-religionist (15)
- ○ Christian (14)
- ○ Confucianist (13)
- ○ Daoist (12)
- ○ Ethnoreligionist (11)
- ○ Hindu (10)
- ○ Jain (9)
- ○ Jewish (8)
- ○ Muslim (7)
- ○ New Religionist (6)
- ○ Shintoist (5)
- ○ Sikh (4)
- ○ Spiritist (3)
- ○ Zoroastrian (2)
- ○ Multiple religions, belief systems, spiritualities, and/or philosophies (1)

○ Not listed above or is incorrectly specified (0)

Display This Question:
If What is your religion, belief system, spirituality, and/or philosophy? = Multiple religions, belief systems, spiritualities, and/or philosophies

You answered "Multiple religions, belief systems, spiritualities, and/or philosophies." Please describe:

_____

Display This Question:
If What is your religion, belief system, spirituality, and/or philosophy? = Not listed above or is incorrectly specified

You answered "My present religion, belief system, spirituality, and/or philosophy is not listed above or is incorrectly specified." Please describe:

_____

X→

In what continent of the world have you lived for the majority of your life?

▼ Africa (0) ... Europe (6)

X→

What sex were you assigned at birth?

- ○ Female (1)
- ○ Male (2)
- ○ Intersex (3)
- ○ The sex that I was assigned at birth is not listed above, or is incorrectly specified. Please specify: (0) _____

Cisgender is a term used to describe a person whose sex assigned at birth corresponds with their gender identity. For instance, a woman who was assigned the sex "female" at birth.

What term best describes your gender and/or gender expression?

	Check all that apply (1)
Agender (15)	☐
Bigender (4)	☐
Cisgender woman (1)	☐
Transgender woman (2)	☐
Transgender man (20)	☐
Feminine-of-center (6)	☐
Masculine-of-center (18)	☐
Feminine-presenting (13)	☐
Masculine-presenting (17)	☐
Femme (7)	☐
Fluid (12)	☐
Gender-fluid (8)	☐
Genderqueer (11)	☐
Two-spirit (10)	☐

Non-binary (9)	☐
Non-conforming (19)	☐
The term that best describes my gender and/or gender expression is not listed above, or is incorrectly specified. Please specify: (3)	☐

Display This Question:
If If Cisgender is a term used to describe a person whose sex assigned at birth corresponds with their... The term that best describes my gender and/or gender expression is not listed above, or is incorrectly specified. Please specify: Is Not Empty

You answered "The term that best describes my sexual orientation is not listed above, or is incorrectly specified." Please explain:

_____

What term best describes your sexual orientation?

- ○ Asexual (9)
- ○ Bisexual (8)
- ○ Gay (7)
- ○ Lesbian (6)
- ○ Pansexual (5)
- ○ Queer (4)
- ○ Questioning (3)
- ○ Straight/Heterosexual (2)
- ○ I identify with multiple sexual orientations (1)
- ○ The term that best describes my sexual orientation is not listed above, or is incorrectly specified (0)

Display This Question:
If What term best describes your sexual orientation? = I identify with multiple sexual orientations

You answered "I identify with multiple sexual orientations." Please describe:

_____

What is your current year in school?

- ○ 1st year undergraduate (1)
- ○ 2nd year undergraduate (2)
- ○ 3rd year undergraduate (3)
- ○ 4th year undergraduate (4)
- ○ 5th year or more undergraduate (5)
- ○ Master's (MSW, MA, MS, MFA, MBA, MPP, MPA, MPH, etc) (6)
- ○ Doctorate (PhD, EdD, MD, JD, etc) (7)
- ○ Not seeking a degree (8)

What is your current enrollment status?

- ○ Full-time (1)
- ○ Part-time (2)
- ○ My current enrollment status is not listed above, or is incorrectly specified. Please specify: (0) _____

Page Break

We would like to learn a little more about you and any current or former intimate relationship you may have or had.

For the purposes of this study, intimate relationship/partner refers to a current or former/ex dating relationship (e.g. girlfriend, boyfriend, partner), and/or sexual partner, and/or spouse.

If you are polyamorous or in a non-monogamous relationship, please answer all questions in this survey as related to only one relationship, preferably your primary relationship.

Have you **ever** been in an intimate relationship?

- ○ Yes (1)
- ○ No (0)

Skip To: Q39 If Have you ever been in an intimate relationship? = No

Display This Question:
If Have you ever been in an intimate relationship? = Yes

Have you been in an intimate relationship within the **past 12 months**?

- ○ Yes (1)
- ○ No (0)

Display This Question:
If Have you ever been in an intimate relationship? = Yes

How would you classify your **current or most recent** intimate relationship? Choose the response that **best** fits your relationship:

- ○ Boyfriend, girlfriend, or partner (14)
- ○ Dating (12)
- ○ Ongoing sexual partner (15)
- ○ Engaged (7)
- ○ Spouse (4)
- ○ Domestic partner (16)
- ○ Polyamorous (1)
- ○ The status of my current or most recent relationship is not specified above or is incorrectly specified. Please specify: (0)
  _____

Display This Question:
If Have you ever been in an intimate relationship? = Yes

Thinking about that **same** person (i.e., current or most recent intimate partner), how long have you been, or were you with, this intimate partner?

- ○ One month (0)
- ○ More than a month but less than 3 months (1)
- ○ 3 months to less than 6 months (2)
- ○ 6 months to less than 1 year (3)
- ○ 1 year to less than 2 years (4)
- ○ 2 years to less than 3 years (5)
- ○ 3 years to less than 4 years (6)
- ○ 4 years to less than 5 years (7)
- ○ 5 years to less than 6 years (8)
- ○ 6 years or more (9)

Display This Question:
If Have you ever been in an intimate relationship? = Yes

Cisgender is a term used to describe a person whose sex assigned at birth corresponds with their gender identity. For instance, a woman who was assigned the sex "female" at birth.

What term do you use to describe your current or most recent partner's gender?

- ○ Agender (17)
- ○ Bigender (16)
- ○ Cisgender man (15)
- ○ Cisgender woman (14)
- ○ Feminine-of-center (13)
- ○ Feminine-presenting (12)
- ○ Femme (11)
- ○ Fluid (10)
- ○ Gender-fluid (9)
- ○ Genderqueer (8)
- ○ Masculine-of-center (7)
- ○ Masculine-presenting (6)
- ○ Non-conforming (5)
- ○ Non-binary (4)
- ○ Transgender woman (3)
- ○ Transgender man (2)
- ○ Two-spirit (1)
- ○ The term I use to describe my partner's gender is not specified above, or is incorrectly specified. Please specify: (0)
  _____

What is your current employment status during this academic year?

- ○ Full-time (2)
- ○ Part-time (1)
- ○ Not employed (0)

Display This Question:
If What is your current employment status during this academic year? = Full-time
Or What is your current employment status during this academic year? = Part-time

During this academic year, on average, how many hours per week have you worked?

0 5 10 15 20 25 30 35 40 45 50 55 60

Slide the dot: ()	

End of Block: Block 1 - Socio-demographics

Start of Block: Block 2 - Mental Health Service Use

Have you **ever** received psychological or mental health services (for example: therapy, psychotherapy, counseling, psychiatry)?

- ○ Yes (1)
- ○ No (0)

Display This Question:
If Have you ever received psychological or mental health services (for example: therapy, psychothera... = Yes

Within the last 12 months, have you received psychological or mental health services?

- ○ Yes (1)
- ○ No (0)

Display This Question:
If Within the last 12 months, have you received psychological or mental health services? = Yes

Were the psychological or mental health services you received **in the last 12 months** provided by:

	Yes (1)	No (0)
Your current campus health and/or counseling center? (1)	○	○
A mental health provider in the local community near your campus? (4)	○	○
A mental health provider in your home town? (5)	○	○
A mental health provider not described above? Please specify: (6)	○	○

End of Block: Block 2 - Mental Health Service Use

Start of Block: Block 3 - Yoga Use

We are now going to ask you some questions to learn about your experience with yoga.

In this study, we define yoga as a practice that connects physical postures with breathing and meditative techniques.

Have you **ever** done yoga?

- Yes (1)
- No (0)

Skip To: Q377 If Have you ever done yoga? = No

Display This Question:
If Have you ever done yoga? = Yes

Have you done yoga in the **past year**?

- Yes (2)
- No (1)

Display This Question:
If Have you done yoga in the past year? = Yes

Have you done yoga in the **past 6 months**?

- Yes (2)
- No (1)

Display This Question:
If Have you done yoga in the past 6 months? = Yes

On average, how frequently did you do yoga in the **past 6 months**?

- ○ Less than once a month (1)
- ○ Once a month (2)
- ○ Every other week (i.e., biweekly) (3)
- ○ Weekly (4)

Display This Question:
If On average, how frequently did you do yoga in the past 6 months? = Weekly

On average, how many minutes or hours did you do yoga **per week**?

- ○ Less than 30 minutes per week (1)
- ○ 30 minutes to less than one hour per week (2)
- ○ 1 hour to less than 2 hours per week (3)
- ○ 2 hours to less than 3 hours per week (4)
- ○ 3 hours to less than 4 hours per week (5)
- ○ 4 hours to less than 5 hours per week (6)
- ○ 5 hours to less than 6 hours per week (7)
- ○ 6 hours to less than 7 hours per week (8)
- ○ 7 hours or more per week (9)

Display This Question:
If Have you ever done yoga? = Yes

Has COVID-19 impacted how **frequently** you do yoga?

- ○ Yes (1)
- ○ No (0)

Display This Question:
If Has COVID-19 impacted how frequently you do yoga? = Yes

In what way has COVID-19 impacted how frequently you do yoga?

- ○ I practice yoga less frequently (1)
- ○ I practice yoga more frequently (2)
- ○ The frequency of my yoga practice has not changed (3)

Display This Question:
If Have you ever done yoga? = Yes

How long have you been practicing yoga?

- ○ One month or less (0)
- ○ More than a month but less than 3 months (1)
- ○ 3 months to less than 6 months (2)
- ○ 6 months to less than 1 year (3)
- ○ 1 year to less than 2 years (4)
- ○ 2 years to less than 3 years (5)
- ○ 3 years to less than 4 years (6)
- ○ 4 years to less than 5 years (7)
- ○ 5 years to less than 6 years (8)
- ○ 6 years or more (9)

Display This Question:
If Have you ever done yoga? = No

Do any of the following explain why you have **not** done yoga?

	Check all that apply (1)
Just not interested in doing yoga (Q377_9)	☐
Worried about injuring yourself (Q377_10)	☐
Felt excluded or marginalized due to a lack of diversity or representation among teachers and/or students (e.g., race, gender, sexuality, disability, body shape/size) (Q377_4)	☐
Felt excluded or marginalized because yoga is too expensive (e.g., classes, equipment, clothing) (Q377_5)	☐
Felt as though yoga conflicts with your personal religion, denomination of faith, or spiritual practice(s) (Q377_6)	☐
Felt uncomfortable with practicing yoga because you believe it has become culturally appropriated and removed from its cultural context (Q377_7)	☐
Yoga is boring (Q377_12)	☐
The poses are too difficult/unrealistic (e.g., "pretzel-like poses," headstand) (Q377_13)	☐
Another reason. Please specify: (Q377_8)	☐

Display This Question:
If Have you ever done yoga? = Yes

What **type(s)/style(s)** of yoga do you typically practice?

	Check all that apply (1)
Ashtanga (20)	☐
Bikram / Hot Yoga (1)	☐
Chair (4)	☐
Forrest (5)	☐
Hatha (6)	☐
Iyengar (7)	☐
Kripulu (8)	☐
Kundalini (9)	☐
Moksha (10)	☐
Power (11)	☐
Partner (12)	☐
Restorative (13)	☐
Tibetan (14)	☐
Vinyasa flow (15)	☐

Yin (16)	☐
Nidra (17)	☐
Trauma-sensitive Yoga or Trauma-informed Yoga (18)	☐
I don't know (22)	☐
The yoga type/style I practice is not listed above or is incorrectly specified. Please specify: (19)	☐

Display This Question:
If Have you ever done yoga? = Yes

What **method(s)** do you typically use for facilitation/instruction of your yoga practice?

	Check all that apply (1)
In person by an instructor (1)	☐
A pre-recorded video (e.g., DVD, online website, app) (4)	☐
A pre-recorded sound recording (e.g., DVD, CD, online website, app) (5)	☐
Yoga cards, book(s), booklet, or pamphlet (6)	☐
Live video feed (e.g., Zoom, Skype, Facetime, Facebook or Instagram live) (7)	☐
Self-directed (practicing from memory) (8)	☐
The method(s) I use for facilitation/instruction of my yoga practice is not listed above or is incorrectly specified. Please specify: (9)	☐

Display This Question:
If Have you ever done yoga? = Yes

Has COVID-19 impacted your typical **methods** of yoga practice facilitation/instruction?

- ○ Yes (1)
- ○ No (0)

Display This Question:

If Has COVID-19 impacted your typical methods of yoga practice facilitation/instruction? = Yes

In what ways has COVID-19 impacted your typical methods of yoga practice facilitation/instruction?

	Check all that apply (1)
I practice less yoga, or no longer practice yoga, in person by an instructor (1)	☐
I practice yoga more using a pre-recorded video(s), sound recording(s), and/or yoga cards, a book(s), or a pamphlet(s) (2)	☐
I practice yoga more using live video feed (3)	☐
I practice more self-directed yoga (4)	☐
Other. Please specify: (5)	☐

Display This Question:
If Have you ever done yoga? = Yes

Where do you typically practice yoga?

	Check all that apply (1)
University/campus studio or classroom (1)	☐
Off campus studio or classroom (4)	☐
Within a personal residence/home (5)	☐
Outside in nature or at a park (6)	☐
Religious organization or spiritual center (7)	☐
In a professional building or business (8)	☐
In a hospital or clinic (9)	☐
At the gym, exercise facility, or recreation center (10)	☐
Where I typically practice yoga is not listed above or is incorrectly specified. Please specify: (11)	☐

Display This Question:
If Have you ever done yoga? = Yes

Has COVID-19 impacted **where** you typically practice yoga?

- ○ Yes (1)
- ○ No (0)

Display This Question:
If Has COVID-19 impacted where you typically practice yoga? = Yes

In what ways has COVID-19 impacted **where** you typically practice yoga?

	Check all that apply (1)
The space/facility where I typically practice yoga has temporarily or permanently closed (1)	☐
I feel less safe, or no longer feel safe, in the space/facility where I typically practice yoga (2)	☐
I practice less yoga, or no longer practice yoga, in a studio, classroom, gym, or indoor space (7)	☐
I practice more yoga within my personal residence/home (3)	☐
I practice more yoga outside in nature or at a park (4)	☐
Other. Please specify: (6)	☐

Display This Question:
If Have you ever done yoga? = Yes

In relation to your yoga practice, do you perceive yourself as a…

- ○ Beginner (0)
- ○ Intermediate (1)
- ○ Advanced (2)
- ○ None of the above. Please specify: (3)
  _____

Display This Question:
If Have you ever done yoga? = Yes

X→

Within your yoga practice, have you **ever** had any of the following experiences or felt a certain way?

	Check all that apply (1)
Negative first experience with yoga and so I never returned to a class/session (1)	☐
Injured myself (e.g., pushing myself too hard) (4)	☐
Experienced pain or abnormal soreness (6)	☐
Someone injured me (e.g., a teacher or student gave me a physical assist, support, or adjustment that injured me) (5)	☐
Received a physical assist(s), support, or adjustment(s) by a teacher or student that made me feel uncomfortable (7)	☐
Felt triggered or overly activated in the class/session (e.g., by a pose, touch, yoga straps, teacher/facilitator, noise, room set-up or ambiance) (8)	☐
Felt excluded or marginalized due to a lack of diversity or representation among the teachers and/or students (e.g., race, gender, sexuality, disability, body shape/size) (9)	☐
Felt uncomfortable with practicing yoga because it has become culturally appropriated and removed from its cultural context (12)	☐
Felt excluded or marginalized because yoga is too expensive (e.g., classes, equipment, clothing) (10)	☐
Felt as though yoga conflicts with my personal religion, denomination of faith, or spiritual practice(s) (11)	☐
Other. Please specify: (13)	☐

End of Block: Block 3 - Yoga Use

Start of Block: Block 4 - ACEs

These next set of questions are about your life experiences. The questions may bring up uncomfortable thoughts, emotions, and/or physical sensations. You may find it helpful to take a break, gather a drink of water, or stretch. If you are so uncomfortable or distressed that you cannot continue, you can stop the survey in its entirety.

If you are in need of support you can download this on-and-off campus safety and health-related resource list and may always contact ASU Counseling at 480-965-6146 or by calling EMPACT's 24-hour ASU-dedicated crisis hotline 480-921-1006. Additional information is available at https://eoss.asu.edu/counseling

While you were growing up during your **first 18 years of life**, did a parent or other adult in the household do any of the following often or very often?

	Yes (1)	No (0)
Swear at, insult, or put you down (1)	○	○
Act in a way that made you afraid that you would be physically hurt (2)	○	○
Push, grab, shove, or slap you (4)	○	○
Hit you so hard that you had marks or were injured (5)	○	○

While you were growing up during your **first 18 years of life**, did an adult or person at least 5 years older ever...

	Yes (1)	No (0)
touch or fondle you in a sexual way? (1)	○	○
have you touch their body in a sexual way? (4)	○	○
attempt oral, anal, or vaginal intercourse with you? (5)	○	○
actually have oral, anal, or vaginal intercourse with you? (6)	○	○

End of Block: Block 4 - ACEs

Start of Block: Block 5 - IPV CAS

Display This Question:
If Have you ever been in an intimate relationship? = Yes

In the below sections we ask about your experiences in adult intimate relationships. For this study, an adult intimate relationship/partner refers to a current or former/ex dating relationship (e.g. girlfriend, boyfriend, partner), and/or sexual partner, and/or spouse. If you are polyamorous or in a non-monogamous relationship, please answer all questions as related to only one relationship, preferably your primary relationship.
We refer to this person as your intimate partner.

Display This Question:
If Have you ever been in an intimate relationship? = Yes

X→ X→

We would like to know if you experienced any of the actions listed below, and how often it happened during the past 6 months. If you have not been in an adult intimate relationship in the past 6 months, please answer for the last intimate partner that you had.

My intimate partner...

	Never (0)	Only Once (1)	Several Times (2)	Once/Month (3)	Once/Week (4)	Daily (5)
kept me from medical care. (3)	○	○	○	○	○	○
followed me when I did not want them to. (4)	○	○	○	○	○	○
tried to turn my family, friends or children against me. (5)	○	○	○	○	○	○
locked me in the bedroom. (6)	○	○	○	○	○	○
slapped me. (7)	○	○	○	○	○	○
tried to force me to have sex (vaginal, anal, oral). (8)	○	○	○	○	○	○
forced me to have sex (vaginal, anal, oral). (9)	○	○	○	○	○	○
tried to keep me from seeing or talking to my family or friends. (10)	○	○	○	○	○	○
told me that I wasn't good enough. (12)	○	○	○	○	○	○
tried to convince my friends, family, or children that I was crazy. (13)	○	○	○	○	○	○
threw me. (14)	○	○	○	○	○	○
hung around outside my house, dorm, class, or place of residence when I did not want them to. (15)	○	○	○	○	○	○
blamed me for causing their violent behavior. (16)	○	○	○	○	○	○

harassed me over the telephone. (17)	○	○	○	○	○	○
shook me (18)	○	○	○	○	○	○
harassed me at work, class, or extra-curricular activities. (19)	○	○	○	○	○	○
pushed, grabbed or shoved me. (20)	○	○	○	○	○	○
used a knife, gun, or other weapon to threaten or harm me. (21)	○	○	○	○	○	○
became upset if schoolwork/dinner/housework was not done when they thought it should be. (22)	○	○	○	○	○	○
told me that I was ugly. (23)	○	○	○	○	○	○
told me that I was crazy. (24)	○	○	○	○	○	○
told me that no one would ever want me. (25)	○	○	○	○	○	○
told me that I was stupid. (26)	○	○	○	○	○	○
took my wallet and left me stranded. (27)	○	○	○	○	○	○
hit or tried to hit me with something. (28)	○	○	○	○	○	○
did not want me to socialize with my friends. (29)	○	○	○	○	○	○
put foreign objects in my vagina/anus. (30)	○	○	○	○	○	○

refused to let me work. (31)	○	○	○	○	○	○	○	○	○
bit me or hit me with a fist. (32)	○	○	○	○	○	○	○	○	○
beat me up. (33)	○	○	○	○	○	○	○	○	○

End of Block: Block 5 - IPV CAS

Start of Block: Block 6 - IPV DDA

Display This Question:
If Have you ever been in an intimate relationship? = Yes

Many people use the Internet and cell phones to communicate with intimate partners. This includes communication such as Twitter, Facebook, text messages, Snapchat, Instagram, etc.

During the **past 6 months**, how often has your **current or most recent intimate partner** done the following things **to you** using **social media, texting, or other online tools**? If you have not been in an adult intimate relationship in the past 6 months, please answer for the last intimate partner that you had.

	How often has **your current or most recent intimate partner** done the following things to you **using social media, texting, or other online tools?**				Thinking about the **last time** this happened, how much did this **upset you**?				
	Never (0)	Rarely (1)	Sometimes (2)	Very often (3)	Not at all (0)	A little (1)	Some (2)	A lot (3)	Not Applicable (4)

Pressured me to sext (send a sexual or nude photo/video of myself). (4)	○	○	○	○	○	○	○	○
Sent a sexual or nude photo/video of themselves to me that I did not ask for that made me feel uncomfortable. (5)	○	○	○	○	○	○	○	○
Sent a sexual or nude photo/video of me to others without my permission. (6)	○	○	○	○	○	○	○	○
Pressured me in texts or on social media to have sex or do other sexual activities. (20)	○	○	○	○	○	○	○	○
Threatened to share sexual photos/videos of me without my permission. (7)	○	○	○	○	○	○	○	○

Sent me a hurtful **private** message (such as a text message, Snapchat, direct message, etc.). (8)	○	○	○	○	○	○	○	○
Posted a hurtful **public** message about me that others can see on social media (such as a group text, subtweet, etc.). (9)	○	○	○	○	○	○	○	○
Spread a hurtful rumor about me by text or social media. (10)	○	○	○	○	○	○	○	○
Threatened in text or on social media to harm me physically. (11)	○	○	○	○	○	○	○	○
Pressured me to respond quickly to their calls, texts, or other messages in a way that made me feel uncomfortable. (12)	○	○	○	○	○	○	○	○

Monitored my whereabouts and activities using texts or social media in a way that made me feel uncomfortable. (13)	○	○	○	○	○	○	○	○
Sent me so many messages (like texts, chats) that it made me feel uncomfortable. (14)	○	○	○	○	○	○	○	○
Controlled who I talk to and/or are friends with on my phone or on social media. (15)	○	○	○	○	○	○	○	○
Pressured me for a password to access my phone or online account(s). (16)	○	○	○	○	○	○	○	○

Looked at my private information (text messages, direct messages, etc.) to check up on me without my permission. (18)	○	○	○	○	○	○	○	○	○
Used my cell phone or online account to pretend they were me. (19)	○	○	○	○	○	○	○	○	○

Display This Question:
If Have you ever been in an intimate relationship? = Yes

Did your partner **do something else to you,** that we haven't asked above, that was hurtful, upsetting, or caused you pain that you would like to tell us about?

- ○ No (0)
- ○ Yes. Please explain: (1) _____

Display This Question:
If Did your partner do something else to you, that we haven't asked above, that was hurtful, upsetti... = Yes. Please explain:

Thinking about the **last time** this happened, how much did this upset you?

- ○ Not at all (0)
- ○ A little (1)
- ○ Some (2)
- ○ A lot (3)

End of Block: Block 6 - IPV DDA

Start of Block: Block 7 - BDSM

Display This Question:
If Have you ever been in an intimate relationship? = Yes

BDSM is an overarching term that encompasses a range of activities related to Bondage, Bondage and Discipline, Domination/Dominance and Submission, and Sadism and Masochism and refers to experiences (e.g., sexual) where free-willed consent between individuals is present.

Were any of the activities that we asked about in the previous section, between you and your intimate partner (current/ex), part of BDSM, including, but not limited, to: hitting, biting, slapping, putting foreign objects in vagina/anus, humiliating partner or being humiliated by partner, and/or using pain.

- ○ All of the activities (2)
- ○ Some of the activities (1)
- ○ None of the activities (0)
- ○ Not applicable (4)
- ○ Other, please specify (3) _____

End of Block: Block 7 - BDSM

Start of Block: Block 8 - Mental Health

We are now going to ask you some questions about your mental and physical health.
Some of the questions may bring up uncomfortable thoughts, emotions, and/or physical sensations. If you are in need of support you can download this on-and-off campus safety and health-related resource list and may always contact ASU Counseling at 480-965-6146 or by calling EMPACT's 24-hour ASU-dedicated crisis hotline 480-921-1006. Additional information is available at https://eoss.asu.edu/counseling.

Over the last 2 weeks, how often have you been bothered by the following?

	Not at all in the last 2 weeks (0)	Several days in the last 2 weeks (1)	More than half the days in the last 2 weeks (2)	Nearly every day in the last 2 weeks (3)
Feeling nervous, anxious or on edge (1)	○	○	○	○
Not being able to stop or control worrying (4)	○	○	○	○
Worrying too much about different things (5)	○	○	○	○
Trouble relaxing (6)	○	○	○	○
Being so restless that it is hard to sit still (7)	○	○	○	○
Becoming easily annoyed or irritable (8)	○	○	○	○
Feeling afraid as if something awful might happen (9)	○	○	○	○

Display This Question:
If Over the last 2 weeks, how often have you been bothered by the following? != Feeling nervous, anxious or on edge [Not at all in the last 2 weeks]
Or Over the last 2 weeks, how often have you been bothered by the following? != Not being able to stop or control worrying [Not at all in the last 2 weeks]
Or Over the last 2 weeks, how often have you been bothered by the following? != Worrying too much about different things [Not at all in the last 2 weeks]

Or Over the last 2 weeks, how often have you been bothered by the following? != Trouble relaxing [Not at all in the last 2 weeks]
Or Over the last 2 weeks, how often have you been bothered by the following? != Being so restless that it is hard to sit still [Not at all in the last 2 weeks]
Or Over the last 2 weeks, how often have you been bothered by the following? != Becoming easily annoyed or irritable [Not at all in the last 2 weeks]
Or Over the last 2 weeks, how often have you been bothered by the following? != Feeling afraid as if something awful might happen [Not at all in the last 2 weeks]

How difficult have these problems made it for you to do your work, attend classes, take care of things at home, or get along with other people?

- ○ Not difficult at all (0)
- ○ Somewhat difficult (1)
- ○ Very difficult (2)
- ○ Extremely difficult (3)

Page Break

Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please indicate how much you have been bothered by that problem **in the past month**.

	Not at all in the past month (1)	A little bit in the past month (2)	Moderately in the past month (3)	Quite a bit in the past month (4)	Extremely in the past month (5)
Repeated, disturbing memories, thoughts, or images of a stressful experience from the past? (25)	○	○	○	○	○
Repeated, disturbing dreams of a stressful experience from the past? (28)	○	○	○	○	○
Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)? (29)	○	○	○	○	○
Feeling very upset when something reminded you of a stressful experience from the past? (30)	○	○	○	○	○

Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past? (31)	○	○	○	○	○
Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it? (32)	○	○	○	○	○
Avoiding activities or situations because they reminded you of a stressful experience from the past? (34)	○	○	○	○	○

Trouble remembering important parts of a stressful experience from the past? (35)	○	○	○	○	○
Loss of interest in activities that you used to enjoy? (36)	○	○	○	○	○
Feeling distant or cut off from other people? (37)	○	○	○	○	○
Feeling emotionally numb or being unable to have loving feelings for those close to you? (38)	○	○	○	○	○
Feeling as if your future will somehow be cut short? (39)	○	○	○	○	○
Trouble falling or staying asleep? (40)	○	○	○	○	○

Feeling irritable or having angry outbursts? (41)	○	○	○	○	○
Having difficulty concentrating? (42)	○	○	○	○	○
Being "super-alert" or watchful or on guard? (43)	○	○	○	○	○
Feeling jumpy or easily startled? (44)	○	○	○	○	○

Page Break

Below is a list of the ways you might have felt or behaved. **Over the last 2 weeks**, please indicate how often you have felt this way:

	Not at all or less than one day (0)	1-2 days (1)	3-4 days (2)	5-7 days (3)	Nearly every day for 2 weeks (4)
My appetite was poor. (1)	○	○	○	○	○
I could not shake off the blues. (4)	○	○	○	○	○
I had trouble keeping my mind on what I was doing. (5)	○	○	○	○	○
I felt depressed. (6)	○	○	○	○	○
My sleep was restless. (7)	○	○	○	○	○
I felt sad. (8)	○	○	○	○	○
I could not get going. (9)	○	○	○	○	○
Nothing made me happy. (10)	○	○	○	○	○
I felt like a bad person. (11)	○	○	○	○	○
I lost interest in my usual activities. (12)	○	○	○	○	○

I slept much more than usual. (13)	○	○	○	○	○
I felt like I was moving too slowly. (14)	○	○	○	○	○
I felt fidgety. (15)	○	○	○	○	○
I wished I were dead. (16)	○	○	○	○	○
I wanted to hurt myself. (17)	○	○	○	○	○
I was tired all the time. (18)	○	○	○	○	○
I did not like myself. (19)	○	○	○	○	○
I lost a lot of weight without trying to. (20)	○	○	○	○	○
I had a lot of trouble getting to sleep. (21)	○	○	○	○	○
I could not focus on the important things. (22)	○	○	○	○	○

Page Break

End of Block: Block 8 - Mental Health

Start of Block: Block 9 - Body Connection

For each statement please indicate the way you **generally feel**. There are no right answers, please answer as truthfully as you can. There are two questions about sexual activity; please consider all sexual activity including self-stimulation. If you do not engage in sexual activity, please leave these questions blank.

	Not at all (0)	A little bit (1)	Some of the time (2)	Most of the time (3)	All of the time (4)
If there is tension in my body, I am aware of the tension. (80)	○	○	○	○	○
It is difficult for me to identify my emotions. (81)	○	○	○	○	○
I notice that my breathing becomes shallow when I am nervous. (82)	○	○	○	○	○
I notice my emotional response to caring touch. (83)	○	○	○	○	○
My body feels frozen, as though numb, during uncomfortable situations. (84)	○	○	○	○	○
I notice how my body changes when I am angry. (85)	○	○	○	○	○
I feel like I am looking at my body from outside of my body. (86)	○	○	○	○	○

I am aware of internal sensation during sexual activity. (87)	○	○	○	○	○
I can feel my breath travel through my body when I exhale deeply. (88)	○	○	○	○	○
I feel separated from my body. (89)	○	○	○	○	○
It is hard for me to express certain emotions. (90)	○	○	○	○	○
I take cues from my body to help me understand how I feel. (91)	○	○	○	○	○
When I am physically uncomfortable, I think about what might have caused the discomfort. (92)	○	○	○	○	○
I listen for information from my body about my emotional state. (93)	○	○	○	○	○

When I am stressed, I notice the stress in my body. (94)	○	○	○	○	○
I distract myself from feelings of physical discomfort. (95)	○	○	○	○	○
When I am tense, I take note of where the tension is located in my body. (96)	○	○	○	○	○
I notice that my body feels different after a peaceful experience. (97)	○	○	○	○	○
I feel separated from my body when I am engaged in sexual activity. (98)	○	○	○	○	○
It is difficult for me to pay attention to my emotions. (99)	○	○	○	○	○

End of Block: Block 9 - Body Connection

Start of Block: Block 11 - Academic Wellbeing

Now, we would like to learn about your academic experiences at Arizona State University (ASU).

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Neutral (4)	Slightly agree (5)	Agree (6)	Strongly agree (7)
I have had a great academic experience at ASU. (1)	○	○	○	○	○	○	○
I am happy with how I've done in my classes. (4)	○	○	○	○	○	○	○
I am satisfied with my academic achievements since coming to ASU. (5)	○	○	○	○	○	○	○
I am pleased with how my college education is going so far. (6)	○	○	○	○	○	○	○
I am a hard worker in my classes. (7)	○	○	○	○	○	○	○
I am a diligent student. (8)	○	○	○	○	○	○	○
I am an organized and effective student. (9)	○	○	○	○	○	○	○
I study well for my classes. (10)	○	○	○	○	○	○	○

I feel like a real part of ASU. (11)	○	○	○	○	○	○	○
People at this school are friendly to me. (12)	○	○	○	○	○	○	○
I can really be myself at this school. (13)	○	○	○	○	○	○	○
Other students here like me the way I am. (14)	○	○	○	○	○	○	○
I am so thankful that I'm getting a college education. (15)	○	○	○	○	○	○	○
I am grateful to the professors and other students who have helped me in class. (16)	○	○	○	○	○	○	○
I feel thankful for the opportunity to learn so many new things. (18)	○	○	○	○	○	○	○

I am grateful for the people who have helped me succeed in college. (20)	○	○	○	○	○	○	○

On a 4.0 scale, what is your approximate, cumulative, grade point average (GPA)?

▼ 0.0 (0) ... 4.0+ (9)

End of Block: Block 11 - Academic Wellbeing

Start of Block: Block 12 - Additional

You have reached the final question in our survey.

Is there anything additional you would like us to know, or would like to share with us, regarding any of the above questions we asked or did not ask?

_____

_____

_____

_____

_____

End of Block: Block 12 - Additional

Start of Block: Block 13 - End of survey

You have now reached the end of the survey. We appreciate your participation in our study. **Please proceed to the next section** to fill out your contact information to receive

your **$5 gift card**. We will also ask you whether you'd like to be contacted for future studies.

- ○ **Continue** to the next section to **receive my gift card** (4)
- ○ **Do not continue** to the next section, **I don't want to receive a gift card** (5)

End of Block: Block 13 - End of survey

APPENDIX F

INCENTIVE FORM

Dissertation Incentive

Survey Flow

Block: Incentive Information (4 Questions)
Standard: On-and-off Campus Resources (1 Question)

Page Break

Start of Block: Incentive Information

Please enter the same participant ID that you entered earlier.

If you forgot your ID, please use the same information below. All letters should be capital.

1. First letter of your birth month
2. First letter of the street name you currently live on
3. Letter of your middle initial, if you don't have a middle initial enter X
4. Number of siblings
5. The last number of your phone number

_____

Please enter a confidential email address to send you your **$5 gift card.** Your gift card will be emailed after we confirm your survey completion. **Please allow for 14 business days for your incentive to be sent.**

You will receive an email from "Tango Card." You will need to open this email and follow the instructions to access your gift card. You will have various vendors to choose from (e.g., Target, Amazon, iTunes).

_____

Would you like to be contacted by our research team regarding future research studies that we are conducting?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Would you like to be contacted by our research team regarding future research studies that we are... = Yes

Please enter a confidential email address where we can reach you:

_____

End of Block: Incentive Information

Start of Block: On-and-off Campus Resources

Before you go, we provide anyone who completes our survey with an on-and-off campus safety and health-related resource list. We sincerely appreciate your participation in our study.

End of Block: On-and-off Campus Resources

APPENDIX G

SAFETY AND HEALTH-RELATED RESOURCES

Arizona State University
On-and-Off Campus Safety and Health-related Resource List

This information is provided on behalf of the study, "College Women's Mental Health, Physical Health, and Academic and Relational Well-being."

ASU Counseling
Appointments available by telephone (480-965-6146) or HIPAA-compliant tele-mental health consult sessions. Additional information is available at https://eoss.asu.edu/counseling. Outside of office hours, call ASU's Dedicated Mental Health Line through EMPACT to speak immediately to a counselor (480-921-1006).

EMPACT
Provides comprehensive crisis and community behavioral health services to all people in need, including 24-hour ASU-dedicated crisis hotline. *Contact: 480-921-1006. Access their website here: http://lafrontera-empact.org/*

ASU Health Services
Medical providers are available to Arizona residing ASU students through in person and Telehealth options. *Access their website here: https://eoss.asu.edu/health*

- Schedule an appointment, or message your provider through *My Health Portal*
- Call during office hours, 480-965-3349
- Call after office hours, 480-965-3349
- *Call 911 for emergencies*

Live Well @ ASU
Provides information and resources to support the health and wellness of ASU students and faculty. *Access their website here: https://wellness.asu.edu*

ASU Center: Mindfulness, Compassion, and Resilience
Provides information and resources on mindfulness. *Access their website here: https://mindfulnesscenter.asu.edu/about/center-staff*

LIBERATE
A meditation app for the Black community led by BIPOC meditation teachers. *Access their website here: https://liberatemeditation.com/*

ASU Sun Devil Fitness and Wellness
Find information on fitness services and wellness services such as massage therapy. *Access their website here: https://fitness.asu.edu/home*

Mind Body Solutions
Provides free online yoga instruction for people living with disabilities. *Access their website here: https://www.mindbodysolutions.org/*

ASU Sexual and Relationship Violence Prevention Program
Provides ASU students with information and resources on sexual and relationship violence, including, but not limited to reporting options, health, safety, and well-being. *Access their website here: https://sexualviolenceprevention.asu.edu/*

AZ Coalition to End Sexual and Domestic Violence (ACESDV)
Provides sexual and domestic violence support, education, and training. *Contact: National Domestic Violence Hotline (1-800-799-7233) or National Sexual Assault Hotline (1-800-656-4673). Access their website here: https://www.acesdv.org/*

Domestic Violence Helpline
Highly trained expert advocates available 24/7 to talk confidentially with anyone experiencing domestic violence, seeking resources or information, or questioning unhealthy aspects of their relationship. *Contact: 1-800-799-SAFE*

myPlan Relationship Assessment App
Download this free mobile phone app to access this tool to help with safety decisions if you, or someone you care about, is experiencing abuse in their intimate relationship. Search "myPlan app" wherever you get apps on Android or Apple devices. *Access myPlan online here: https://www.myplanapp.org/*

Bloom365
A local non-profit organization serving all youth experiencing harm from a partner or doing harm to their partner. They have a helpline and lots of resources for learning about abusive relationships. *Access their website here: https://www.bloom365.org/*

Kaity's Way
A local nonprofit that raises awareness about teen dating violence and provides education to the community. *Access their website here: https://kaitysway.org/*

211 Arizona Hotline
This hotline can help victims of dating or sexual violence to find shelter in Phoenix area. Dial 2-1-1 within Arizona (480-890-3039 after 6pm or on weekends). *Access their website here: https://211arizona.org/*

ASU Student Accessibility and Inclusive Learning Services (SAILS)
Supports ASU students with disabilities and aims to ensure accessibility and inclusion for the Sun Devil community. Contact: *480-965-1234 and/or DRC@asu.edu. Access their website here: https://eoss.asu.edu/drc*

One N Ten
A local nonprofit providing LGBTQA+ specific education, resources, and services. *Access their website here: https://onenten.org/*

Gay, Lesbian, & Straight Education Network (GLSEN)- Phoenix Chapter
National organization supporting students right to a safe and supportive education, regardless of sexual orientation and gender identity. List of local resources including advocacy & support, legal help, & health information. *Access their website here: https://www.glsen.org/chapter/phoenix*

Trans Lifeline's Hotline
24/7 peer support hotline run by trans people for trans and questioning people. *Contact: 877-565-8860. Access their website here: https://translifeline.org/hotline/*

The Trevor Project
Safe and confidential support for LGBTQ young people. Chat or text with a trained counselor at their 24/7 support hotline. *Contact: 1-866-488-7386. Access their website here: https://www.thetrevorproject.org*

APPENDIX H

PARTICIPANT COMMUNICATION REGARDING SUSPICIOUS ACTIVITY

EMAIL TEMPLATE

SUBJECT: Students' Health and Well-being Study

Hello,

We are a team of researchers at the Watts College of Public Service and Community Solutions, School of Social Work. We are conducting a study on ASU students' health and well-being.

If you participated in this study, please reply confirming your participation.

Please let me know if you have any questions or concerns regarding this email and/or regarding our study.

Thank you,

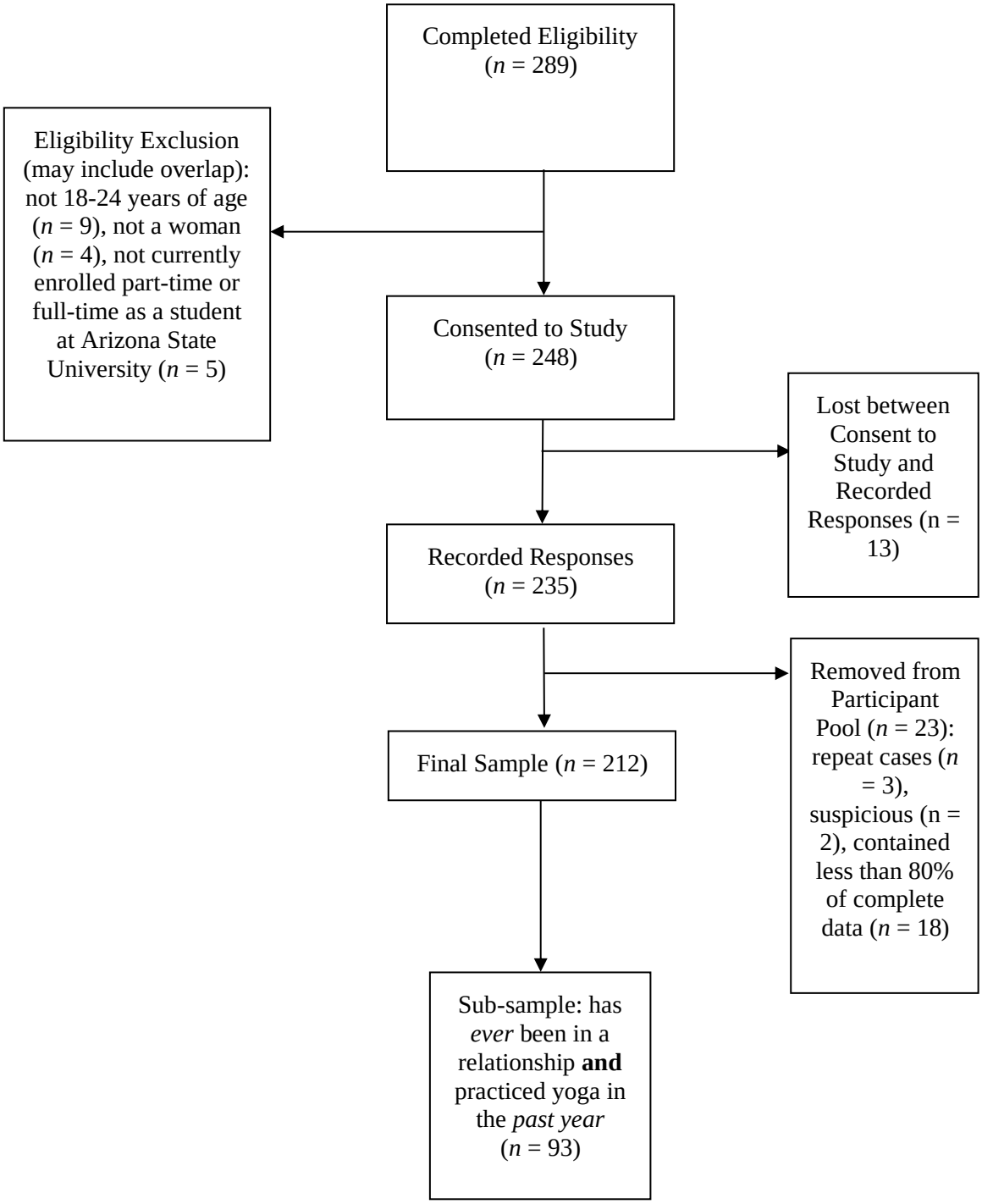
Andrea Kappas Mazzio

Email signature

APPENDIX I

DATA CLEANING PROCESSES

Flowchart of the Data Cleaning Process



APPENDIX J

POST-TRAUMATIC STRESS DISORDER SYMPTOMS (ALL BLOCKS/STEPS)

Post-traumatic Stress Disorder Symptoms (All Blocks/Steps)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error for B	β	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	32.423	4.594		7.058	<.001	23.286	41.560		
	Hispanic or Latinx	-1.429	4.837	-.032	-.296	.768	-11.049	8.191	.934	1.071
	Asian	5.896	5.934	.109	.994	.323	-5.906	17.698	.887	1.128
	Another Race and Ethnicity [a]	3.615	5.261	.074	.687	.494	-6.848	14.078	.924	1.082
	Bisexual Orientation	6.124	4.568	.145	1.341	.184	-2.962	15.210	.920	1.086
	Another Sexual Orientation [b]	1.266	4.898	.028	.258	.797	-8.477	11.008	.911	1.098
	Employment Part-time	-3.058	4.020	-.098	-.761	.449	-11.055	4.938	.644	1.554
	Employment Full-time	-10.674	5.402	-.245	-1.976	.051	-21.418	.069	.700	1.429
	Mental Health Service Use Ever	6.072	3.465	.195	1.752	.083	-.820	12.965	.866	1.154
2	(Constant)	28.457	4.375		6.504	<.001	19.753	37.161		
	Hispanic or Latinx	.320	4.500	.007	.071	.943	-8.633	9.273	.924	1.082
	Asian	5.809	5.493	.108	1.058	.293	-5.118	16.736	.886	1.128
	Another Race and Ethnicity [a]	1.854	4.891	.038	.379	.706	-7.876	11.585	.916	1.091
	Bisexual Orientation	5.411	4.233	.128	1.278	.205	-3.009	13.832	.919	1.089
	Another Sexual Orientation [b]	.745	4.536	.017	.164	.870	-8.280	9.769	.910	1.099
	Employment Part-time	-3.215	3.722	-.103	-.864	.390	-10.619	4.190	.644	1.554

	Employment Full-time	-8.787	5.024	-.202	-1.749	.084	-18.782	1.208	.693	1.442
	Mental Health Service Use Ever	4.562	3.232	.147	1.411	.162	-1.868	10.991	.854	1.171
	ACEs Composite [c]	3.467	.900	.380	3.854	<.001	1.677	5.256	.950	1.053
3	(Constant)	27.017	4.408		6.130	<.001	18.244	35.790		
	Hispanic or Latinx	1.905	4.346	.042	.438	.662	-6.746	10.556	.908	1.102
	Asian	5.156	5.275	.096	.977	.331	-5.344	15.656	.880	1.136
	Another Race and Ethnicity [a]	4.047	4.740	.083	.854	.396	-5.387	13.481	.894	1.119
	Bisexual Orientation	4.433	4.344	.105	1.020	.311	-4.214	13.080	.799	1.252
	Another Sexual Orientation [b]	.625	4.394	.014	.142	.887	-8.122	9.372	.888	1.126
	Employment Part-time	-2.129	3.686	-.068	-.578	.565	-9.467	5.208	.601	1.664
	Employment Full-time	-7.637	4.881	-.175	-1.565	.122	-17.353	2.079	.673	1.486
	Mental Health Service Use Ever	4.886	3.120	.157	1.566	.121	-1.325	11.096	.839	1.192
	ACEs Composite [c]	2.812	.951	.308	2.957	.004	.919	4.705	.779	1.284
	CAS Physical Abuse	4.836	5.747	.107	.841	.403	-6.604	16.275	.519	1.926
	CAS Harassment	17.509	7.107	.306	2.464	.016	3.363	31.654	.548	1.825
	CAS Emotional Abuse	-4.343	4.786	-.114	-.907	.367	-13.870	5.184	.540	1.853
4	(Constant)	27.295	4.497		6.069	<.001	18.341	36.249		
	Hispanic or Latinx	2.020	4.382	.045	.461	.646	-6.704	10.744	.903	1.107
	Asian	5.182	5.305	.096	.977	.332	-5.379	15.743	.880	1.136
	Another Race and Ethnicity [a]	3.929	4.777	.081	.823	.413	-5.581	13.439	.890	1.124
	Bisexual Orientation	4.321	4.379	.102	.987	.327	-4.397	13.039	.795	1.258

Another Sexual Orientation [b]	.682	4.422	.015	.154	.878	-8.121	9.484	.887	1.128
Employment Part-time	-2.239	3.719	-.072	-.602	.549	-9.643	5.165	.597	1.675
Employment Full-time	-7.819	4.934	-.179	-1.585	.117	-17.641	2.003	.666	1.502
Mental Health Service Use Ever	4.971	3.146	.160	1.580	.118	-1.293	11.234	.834	1.199
ACEs Composite [c]	2.790	.958	.305	2.911	.005	.882	4.698	.775	1.290
CAS Physical Abuse	4.803	5.780	.107	.831	.408	-6.703	16.310	.519	1.927
CAS Harassment	16.967	7.300	.296	2.324	.023	2.435	31.500	.525	1.905
CAS Emotional Abuse	-3.973	4.919	-.104	-.808	.422	-13.766	5.820	.516	1.936
Yoga Participation	-1.495	4.114	-.035	-.363	.717	-9.686	6.696	.900	1.111

Note. ACES = Adverse Childhood Experiences, CAS = Composite Abuse Scale.
*$p < .05$. **$p < .01$. ***$p < .001$.
[a] Black or African American, Multiracial, not listed or incorrectly specified. [b] Asexual, multiple sexual identities, pansexual, queer, questioning, not listed or incorrectly specified. [c] Only three (i.e., emotional, physical, and sexual abuse) categories were assessed for out of the seven total categories. Further, a sum score was created based on each item within the three categories, for which scores ranged from zero to eight.

APPENDIX K

DEPRESSION SYMPTOMS (ALL BLOCKS/STEPS)

Depression Symptoms (All Blocks/Steps)

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
	Model	B	Std. Error For B	β	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	22.547	4.911		4.591	<.001	12.780	32.315		
	Hispanic or Latinx	-5.279	5.170	-.106	-1.021	.310	-15.562	5.005	.934	1.071
	Asian	.323	6.343	.005	.051	.959	-12.293	12.939	.887	1.128
	Another Race and Ethnicity [a]	-6.873	5.624	-.128	-1.222	.225	-18.058	4.313	.924	1.082
	Bisexual Orientation	10.800	4.883	.232	2.212	.030	1.087	20.513	.920	1.086
	Another Sexual Orientation [b]	3.418	5.236	.069	.653	.516	-6.997	13.833	.911	1.098
	Employment Part-time	-6.342	4.298	-.185	-1.476	.144	-14.890	2.207	.644	1.554
	Employment Full-time	-14.042	5.774	-.293	-2.432	.017	-25.527	-2.557	.700	1.429
	Mental Health Service Use Ever	5.225	3.704	.153	1.410	.162	-2.143	12.593	.866	1.154
2	(Constant)	18.016	4.617		3.902	<.001	8.832	27.201		
	Hispanic or Latinx	-3.280	4.749	-.066	-.691	.492	-12.727	6.166	.924	1.082
	Asian	.224	5.796	.004	.039	.969	-11.306	11.754	.886	1.128
	Another Race and Ethnicity [a]	-8.884	5.161	-.165	-1.721	.089	-19.151	1.383	.916	1.091
	Bisexual Orientation	9.986	4.466	.215	2.236	.028	1.101	18.871	.919	1.089
	Another Sexual Orientation [b]	2.823	4.787	.057	.590	.557	-6.700	12.345	.910	1.099

	Employ Part-time	-6.520	3.927	-.190	-1.660	.101	-14.333	1.292	.644	1.554
	Employ Full-time	-11.886	5.302	-.248	-2.242	.028	-22.432	-1.339	.693	1.442
	Mental Health Service Use Ever	3.499	3.410	.102	1.026	.308	-3.285	10.283	.854	1.171
	ACEs Composite [c]	3.961	.949	.394	4.173	<.001	2.073	5.849	.950	1.053
3	(Constant)	16.713	4.784		3.494	<.001	7.192	26.234		
	Hispanic or Latinx	-1.964	4.717	-.040	-.416	.678	-11.354	7.425	.908	1.102
	Asian	-.241	5.725	-.004	-.042	.967	-11.637	11.155	.880	1.136
	Another Race and Ethnicity [a]	-7.217	5.144	-.134	-1.403	.165	-17.455	3.022	.894	1.119
	Bisexual Orientation	9.191	4.715	.197	1.949	.055	-.194	18.576	.799	1.252
	Another Sexual Orientation [b]	2.811	4.769	.057	.589	.557	-6.682	12.304	.888	1.126
	Employment Part-time	-5.499	4.001	-.161	-1.374	.173	-13.463	2.465	.601	1.664
	Employment Full-time	-11.136	5.298	-.232	-2.102	.039	-21.681	-.591	.673	1.486
	Mental Health Service Use Ever	3.499	3.386	.110	1.111	.270	-2.979	10.502	.839	1.192
	ACEs Composite [c]	3.376	1.032	.336	3.271	.002	1.322	5.430	.779	1.284
	CAS Physical Abuse	4.392	6.237	.088	.704	.483	-8.023	16.808	.519	1.926
	CAS Harassment	12.986	7.713	.206	1.684	.096	-2.366	28.338	.548	1.825
	CAS Emotional Abuse	-2.632	5.194	-.062	-.507	.614	-12.971	7.708	.540	1.853
4	(Constant)	16.490	4.883		3.377	.001	6.769	26.211		
	Hispanic or Latinx	-2.057	4.757	-.041	-.432	.667	-11.528	7.415	.903	1.107
	Asian	-.262	5.760	-.004	-.045	.964	-11.729	11.205	.880	1.136
	Another Race and Ethnicity [a]	-7.122	5.186	-.133	-1.373	.174	-17.447	3.203	.890	1.124

Bisexual Orientation	9.281	4.755	.199	1.952	.055	-.185	18.747	.795	1.258
Another Sexual Orientation [b]	2.766	4.801	.056	.576	.566	-6.792	12.323	.887	1.128
Employment Part-time	-5.412	4.038	-.158	-1.340	.184	-13.450	2.627	.597	1.675
Employment Full-time	-10.990	5.357	-.229	-2.052	.044	-21.654	-.326	.666	1.502
Mental Health Service Use Ever	3.693	3.416	.108	1.081	.283	-3.107	10.494	.834	1.199
ACEs Composite [c]	3.394	1.040	.337	3.262	.002	1.323	5.465	.775	1.290
CAS Physical Abuse	4.418	6.275	.089	.704	.483	-8.075	16.911	.519	1.927
CAS Harassment	13.421	7.925	.213	1.693	.094	-2.358	29.199	.525	1.905
CAS Emotional Abuse	-2.928	5.341	-.069	-.548	.585	-13.561	7.704	.516	1.936
Yoga Participation	1.200	4.467	.026	.269	.789	-7.693	10.093	.900	1.111

Note. ACES = Adverse Childhood Experiences, CAS = Composite Abuse Scale.
*$p < .05$. **$p < .01$. ***$p < .001$.
[a] Black or African American, Multiracial, not listed or incorrectly specified. [b] Asexual, multiple sexual identities, pansexual, queer, questioning, not listed or incorrectly specified. [c] Only three (i.e., emotional, physical, and sexual abuse) categories were assessed for out of the seven total categories. Further, a sum score was created based on each item within the three categories, for which scores ranged from zero to eight.