2021

# The Relationship Between Sexual Assault and PTSD

Beverley Priest
*Walden University*

# Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Beverley Priest

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. John Deaton, Committee Chairperson, Psychology Faculty
Dr. Marilyn Powell, Committee Member, Psychology Faculty
Dr. Kimberley Cox, University Reviewer, Psychology Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

The Relationship Between Sexual Assault and PTSD

by

Beverley Priest

MPhil, Walden University, 2019

MA, Illinois School of Professional Psychology, 2003

BA, Roosevelt University, 1990

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

May 2021

Abstract

People who have experienced trauma, such as sexual assault, are more likely to develop

posttraumatic stress disorder (PTSD). Women are twice as likely to develop PTSD from a

traumatic event than men, especially from a sexual assault. Alcohol abuse is associated

with more cases of and more severity of PTSD symptoms. Intimate partner violence can

strongly contribute to or worsen the symptoms of PTSD. The research questions

examined the relationship between sexual assault (SA) and the subsequent development

of (PTSD, SA and the presence of alcohol dependence/addiction and the subsequent

development of PTSD, and SA) and the presence of intimate partner violence and the

subsequent development of PTSD. A quantitative random-effects model meta-analysis

was conducted. This was completed doing thorough searches for suitable articles and

were done using multiple databases and search terms. There were seven, six, and four

final articles chosen for each research questions, respectively. The results showed all the

articles for all the research questions, except for two, showed statistical significance. The

weighted mean effect sizes, which are the backbone of a meta-analysis, showed strong

effects for two out of three research questions. The overall conclusion of this meta-

analysis showed that there should be continuing research in these areas and beyond.

These results could be used to help the populations addressed in this study and others,

which also helps create positive social change.

The Relationship Between Sexual Assault and PTSD

by

Beverley Priest

MPhil, Walden University, 2019

MA, Illinois School of Professional Psychology, 2003

BA, Roosevelt University, 1990

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

May 2021

Dedication

How can I adequately thank and what can I adequately say about someone who has gone above and beyond for me this entire dissertation process? I will try to do justice to all he has done in this dedication. Dr. John Deaton is the only one who fits the criteria for a dedication.

He was my statistics professor for both classes. For the first time in my life, statistics not only made sense, but I enjoyed the classes and the challenging assignments. As a professor for those classes, Dr. Deaton always gave timely and helpful feedback which furthered my learning and understanding of the subjects. He was also there to help whenever students needed it. After taking that first statistics class, I knew I wanted Dr. Deaton as my professor for the second statistics class. I wanted to be inspired again in a subject that had previously not inspired me.

When I tried to sign up for his class, it was full. So, I signed up for the class with another professor. I monitored the class everyday to see if there were dropouts in Dr. Deaton's class. Finally, just days before the class started, there were a couple of dropouts. I quickly dropped the other class and signed up for Dr. Deaton's class. As with the first one, I learned so much, and appreciated Dr. Deaton's feedback, kindness, and humor. Yes, it is important to learn statistics with a sense of humor too. However, I earned both my A's for those classes with very hard work and tenacity, because Dr. Deaton also made the classes very challenging, as they should be.

During that class, I knew I wanted to have Dr. Deaton as my dissertation Chair. When I asked him, he said, "I would be happy to be your Chair." Dr. Deaton was and is

an exceptional professor, and this next comment does not diminish that. However, as exceptional a statistics professor as Dr. Deaton was, it did not compare to how great a dissertation professor, mentor, and advocate he has been. Dr. Deaton is truly an advocate in every sense of the word. I have spoken to many friends going through the program who have had frustrating experiences with their chairs. While I can sympathize for them, I cannot empathize with their plights, as I have had the exact opposite experience.

I won't go into the details of the journey Dr. Deaton and I have taken to arrive at this point. Suffice it to say, we both earned this. While I have worked unbelievably hard to get to this point and most definitely earned what I have achieved, the mentorship, advocacy, and consistent support, from Dr. Deaton, made all the difference in why I am here today.

As both a student and a college educator myself, I have seen the best and the worst in this field. There are a lot of good professors and a lot of not so good professors, but there are far fewer who are exemplary, like Dr. Deaton. He should be teaching and is the standard for what a professor should strive to be. Anyone lucky enough to have him as a professor could not help but concur. I feel truly lucky that I happened to get Dr. Deaton by chance as my statistics professor for that first class. The rest is history…

Acknowledgments

As this is in my dissertation, I want to make sure I thank the other two people who were directly integral in my dissertation process first. Dr. Marilyn Powell, my second committee member, joined my committee when my former second committee member left the university. She has been there since the early days of writing my proposal. I appreciate her support. Dr. Kimberley Cox, my URR, I am grateful for her help.

Dr. Tim Leonetti has been such an advocate for me and my appreciation for his help is indescribable. He stepped in many times when things were being held-up by others and fought to help me move forward. He has always believed in me, respected my abilities, and has been nothing but kind and generous with his help and time.

Dr. Amy Sickel's compassion and support go beyond schoolwork, as she has been a sounding board and a champion for me in every way. I really appreciate her knowledge, her kindness, and her humor. Thank you!

I was so lucky to have an advisor like Greg Murphy. When the university tried to take him away from me and replace him, we both protested, and I got him back. He helped me in every way possible, including just calling to check-up. His caring and generosity for students knows no bounds. He responded to messages promptly, with an answer, a solution, or whatever was needed in the situation, and did so with positive encouragement. It has been a gift to have him as my advisor.

Ryan Nowicki was my financial aid guru. There were so many times my financial aid process did not go smoothly, and I was held-up no matter how proactive I was. Ryan stepped in and took care of things, so they moved forward again. He always got back to

me with a resolution, humor, and we would talk about football. He always replaced the difficulty of the situation with relief and peace.

I want to thank all my friends and loved ones all around the world for their continual love and support, throughout this entire process. My appreciation, respect, and love for all these people are immense. While the list is way too long to mention people by name, I have regularly expressed my gratitude and affection directly to them, for this and so many other things. It is important to never take people dear to you for granted, and I never do.

Again, my deepest thanks to everyone!

Table of Contents

List of Tables

## List of Figures

Chapter 1: Introduction to the Study

**Introduction**

The purpose of this research was to examine the relationship between rape and the subsequent development of posttraumatic stress disorder (PTSD) in women, as related to factors such as: comorbidity of alcohol dependence/abuse and intimate partner violence. Continuing and life-long negative psychological and medical results have been linked with sexual assault (Kuehn, 2011), which has been shown to be a factor in one of the highest rates of PTSD among nonveteran civilian populations (Yusko & Gay, 2017).

The study was meta-analytical. It examined the relationship between factors associated with sexual assault in women and the development of PTSD. The research questions examined whether there was a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted, whether there was a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women, and whether there was a relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted.

Conducting this type of research and examining these research questions in a meta-analytical format was important in helping to understand that PTSD is not just combat related. But that it affects people for a myriad of reasons, including sexual assault. Additionally, this research provided an opportunity for examining positive social change.

The likelihood is strong that the women who have experienced sexual assault and PTSD would require and benefit from both medical and psychological services. For psychological services and medical treatments to be the most effective, they need to properly address the populations that are affected, as different populations have different treatment needs. Being able to access the proper immediate and long-term services would likely help the individual. Thus, helping to contribute to positive social change as there is more awareness and more availability to appropriate services.

In a comparison between men and women's typical lifetime exposure to traumatic events, men's experiences are typically higher. The types of traumas do differ between the genders. Men typically experience more physical nonsexual violence and women experience more violence that is sexual (Smith et al., 2016).

Women are twice as likely to develop PTSD from a traumatic event than men (Smith et al., 2016). This is especially true in cases of sexual assault (Smith et al., 2016). Approximately 2.1 in every 1,000 women are affected (Planty et al., 2016).

Because many of the studies on PTSD focus on military populations and combat PTSD (APA, 2021), instead of civilian sexual assaults, and women have such a high incidence of PTSD (APA, 2021), it was important to add research to this topic. As discussed above, gaining access to the proper immediate and long-term services would likely help the individual. Clinicians need to be able to recognize and properly diagnose PTSD to address all the populations that are affected and across all potential traumatic occurrences.

The terms sexual assault and rape were both used throughout the paper, as they applied. While all rape is sexual assault, not all sexual assaults are rape. Both terms were clearly defined in the definition section.

Additionally, alcohol dependence/addiction referred to the development of this disorder or condition either because of the sexual assault or as a pre-existing condition prior to the sexual assault. When the term comorbidity is used, it refers to the development of alcohol dependence/addiction either as a pre-existing condition prior to the sexual assault or after the sexual assault. The key component was that alcohol use or abuse by the survivor was present.

When referring to intimate partner violence, this meant all types of violence, including physical and sexual. This is discussed further in the Chapter 2 literature review. Chapter 1 introduces the study and the purpose of the study. Included in this chapter is a discussion of the incidence and prevalence of PTSD. Additionally, there is a discussion of the clinical and diagnostic criteria of PTSD.

**Brief Statement of the Problem**

Still today, PTSD is a term that mainly seems to evoke thoughts of military personnel or veterans who are having flashbacks years after combat (Anxiety.org, 2017). There is some research that has focused on sexual assault and PTSD in women and more cases of PTSD have been attributed to sexual assault in women. However, most of the research has focused on military populations (APA, 2021).

The studies of PTSD and military populations primarily do not address the multitude of military women who develop PTSD from sexual assault (Parnell et al.,

2018). Rather, the focus has been on combat and PTSD (APA, 2021). With regards to women specifically, the focus has been on Active Duty or veteran women, with medical issues, but not PTSD, even when it would qualify (Parnell et al., 2018). Further, there are studies of alcohol issues and intimate partner violence in cases of military PTSD (Walton et al., 2018; Misca & Forgey, 2017). However, they do not incorporate sexual assault and PTSD in women (Parnell et al., 2018).

## Purpose of the Study

The purpose of this research was to examine the relationship between sexual assault and PTSD in women, as related to several factors. These factors were as follows: (a) whether there is a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted, (b) whether there is a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women, and (c) whether there a relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted. Because it was meta-analytical, by way of this study, I evaluated previous research, from various studies pertaining to the topic (see Lipsey & Wilson, 1993).

Continuing and life-long negative psychological have been linked with sexual assault (Kuehn, 2011). Additionally, negative medical outcomes and issues have also been associated with sexual assault (Kuehn, 2011). These are factors in one of the highest rates of PTSD among nonveteran civilian populations (Yusko & Gay, 2017).

**Background**

Sexual assault affects all populations and results in detrimental psychological symptomology (Kuehn, 2011). Those who have undergone traumas, such as sexual assault, are more apt to develop PTSD, which can be incapacitating. Rates of PTSD have been shown to be as high as 95% in the weeks after a sexual assault (Elklit & Christiansen, 2013). PTSD is reported to be directly connected to exposure to a traumatic episode or event, in which the person saw or was directly involved in the event (Smith et al., 2016).

Nationally, rates of sexual assault in adults are as high as 20% for women and 5% for men (Busch-Armendariz et al., 2011). Trauma affects both genders, the types of traumas tend to vary by gender (Galovski et al., 2013). Men are more likely than women to undergo every kind of trauma, except for sexual assault (Galovski et al., 2013).

In this study, I examined PTSD and its relation to different factors. First, I examined the presupposition that women who have been sexually assaulted are susceptible to developing PTSD. I also examined two other research questions to investigate the presence of alcohol dependence/addiction and intimate partner violence.

Intimate partner violence can strongly contribute to or worsen the symptoms of PTSD (Ullman et al., 2014). In addition, it has been shown that men who have comorbid PTSD and alcohol issues report more alcohol cravings and legal issues, while women report PTSD symptoms (Lehavot et al., 2014). Further, alcohol abuse is associated with more cases of and more severity of PTSD symptoms (Blancoa et al., 2013).

**Posttraumatic Stress Disorder (PTSD)**

PTSD was originally acknowledged in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III), in 1980 (American Psychiatric Association [APA], 1980). PTSD often manifests itself in the wake of a specific traumatic event (Smith et al., 2016). This event is one in which the person saw or was directly involved in an event, such as combat, various crimes, sexual assault (Smith et al., 2016).

PTSD is typified by a re-experiencing of symptoms, avoidance, numbness, intrusive thoughts and nightmares, increased startle response, to name a few (Moser et al., 2015). Many factors contribute to the risk of developing PTSD after exposure to traumatic events. Also, it is estimated that about 50% of the general population experiences some type of traumatic episode in their lifetimes (Galovski et al., 2013).

While the overall numbers are high for PTSD, especially in women, when examining all genders and traumas, one could encounter statistics stating only 6.8% of the United States' population will develop PTSD from experiencing a trauma (Cascardi et al., 2015). Those who encounter violent interpersonal traumas are more likely to develop PTSD, rather than someone who encounters other types of trauma (Cascardi et al., 2015). This is important to understand from both a research perspective and a treatment perspective.

*DSM Classification*

Over time the diagnosis and the criteria for PTSD have evolved and adjusted into a more accurate picture. Up until the DSM, 4th edition (APA, 2000), PTSD fit into the

anxiety disorders classification. It was recognized that anxiety is a predominant reaction to trauma, which was an important distinction for the diagnosis of PTSD (APA, 2000).

In 2013, the fifth edition of the DSM (APA, 2013) was released. This edition refined the classification of PTSD. As a result, it was put in the category of trauma- and stressor-related disorders, which is a category that encompasses disorders with the criterion of exposure to a trauma or stressful event (APA, 2013).

In the DSM-IV, PTSD was classified as an anxiety disorder that was made up of three distinct clusters. These clusters were reexperiencing, arousal, and avoidance (APA, 1994; Feuer et al., 2005). In the DSM-5, the three-cluster configuration was replaced with a four-cluster configuration, which is reexperiencing, negative shifts in cognition and/or mood, avoidance, and shifts in arousal and reactivity (Konecky et al., 2016).

Besides the reorganization of the groups of symptoms, additional changes were made to the diagnostic criteria for PTSD in the DSM-5. These changes included modifications in the structure and number of symptoms and specific changes to the description of a traumatic occurrence (Armour et al., 2014). Another addition to the symptom criteria is the addition of a subtype to determine whether dissociation is present and what type: depersonalization or derealization (Tsai et al., 2015).

*Diagnostic Criteria*

The first diagnostic criterion for PTSD is contact with tangible or threatened sexual violence, death, or injury, either directly, learning about, witnessing, or repeatedly experiencing (APA, 2013). The second criterion involves the existence of one or more intrusive symptoms related to the trauma in the first criterion. These intrusive symptoms

include upsetting memories of the trauma, continual upsetting dreams, and dissociative and continuing responses to internal and/or external cue difficulties (APA, 2013).

The third criterion involves avoidant behaviors related to the trauma. These behaviors can be avoidance of memory and cognitions, or people, places, and things (APA, 2013). The fourth criterion involves dysfunctional changes in thoughts and moods. These changes include difficulty remembering parts of the trauma or dissociative amnesia, negative self-view, self-blame from negative thoughts, negative emotional state, lack of interest in daily activities, feeling isolated from others, and inability to feel positive emotions (APA, 2013).

The fifth criterion involves distorted arousal and reactivity. These distortions can manifest in short-tempered or enraged behavior, irresponsible or self-destructive behaviors, hypervigilance, exaggerated startle response, and difficulties with sleep and concentration (APA, 2013). The sixth criterion involves the length of time the symptoms have been present. Criteria 2, 3, 4, and 5 need to be present for more than a month for a diagnosis of PTSD (APA, 2013).

The seventh criterion states that the trauma negatively affects areas of life. These areas include home, social, work, and the like (APA, 2013). The eighth criterion distinguishes PTSD from substance induced issues. This criterion states that the trauma is not attributable to a substance or alcohol (APA, 2013).

The diagnostic criteria also allow for a subtype to determine whether dissociation is present in the diagnostic picture (APA, 2013). Additionally, if it is present, to classify what type, either depersonalization, which refers to an out of body type feeling or

derealization, which refers to a feeling where it seems as if the world is unreal (APA, 2013; Tsai et al., 2015). The diagnostic criteria take into consideration that there may be a delayed diagnosis in cases where it takes up to 6 months for the diagnostic criteria to be met for the diagnosis of PTSD (APA, 2013).

*Traumatic Event*

One aspect that distinguishes PTSD from other disorders is that a formal diagnosis of PTSD must be the result of a specific traumatic event or events (APA, 2013). Originally, as stated in the DSM-III, it was believed that this stressor had to be a direct catastrophic event, directly experienced by the person that was not typical in everyday life (APA, 1980). Later, this was revised in the DSM-IV when it was decided that this criterion would likely negate many people who should be diagnosed, preventing them from receiving the necessary treatment (McNally et al., 2003).

In the DSM-5, the traumatic event, which is exposure to a trauma or stressful event, has a new category with disorders like PTSD included in the category, as mentioned above, called trauma- and stressor-related disorders (APA, 2013). Specific changes have been made to the description of a traumatic occurrence (Armour et al., 2014), which is the first criterion in the diagnosis of PTSD. As mentioned above, a traumatic occurrence is contact with tangible or threatened sexual violence, death, or injury, either directly, learning about, witnessing, or repeatedly experiencing (APA, 2013).

There are many types of traumatic events. Some examples of a traumatic event include but are not limited to the following, threat of death of oneself or a loved one,

sexual assault, being kidnapped or trafficked for sex, domestic violence, witnessing a

crime or being a crime victim, war, combat, terrorist attack or threat, incarceration, car

accident, medical crisis or terminal condition (APA, 2013). They can also be natural

disasters like hurricane, fire, or earthquake (APA, 2013).

One must be exposed to one or more traumatic event and to feel things like

helplessness, fear, and horror (APA, 2013). However, because of the changes to the

DSM-V, the person no longer needs to directly experience the traumatic event, and

exposure can be either indirect or direct (APA, 2013). This criterion allows for a more

inclusive and realistic picture of potentially affected populations

The person needs to either be a witness, be directly involved in the singular event

or repeated events or learn about an event that happened to a friend or family member

(APA, 2013). This experience must be severe enough that it affects his or her physical

and emotional well-being, and he or she experiences the feelings and thoughts

represented in the diagnostic criteria (APA, 2013). The results of this likely benefit those

who witness and/or hear about events, and are afflicted with symptoms, get the assistance

and understanding they did not receive using past diagnostic criteria.

*PTSD Prevalence*

Men experience more violence and every type of assault or trauma, which would

include things like shootings, physical fights, stabbings, and muggings, over their

lifetimes, than women (Galovski et al., 2013), with one exception. Women experience

higher incidence of completed rapes and sexual assault (other than completed rapes) than

men, over their lifetimes (Black et al., 2011). Lifetime rates of PTSD in women have

been shown to be 50-95% after a sexual assault (Elklit & Christiansen, 2013).

Women are more highly susceptible to PTSD (Smith et al., 2016). Also, women

are approximately two times as likely to develop PTSD over their lifetime than men

(Smith et al., 2016) even though exposure to traumatic stressors has consistently been

shown to be less in women than men (Galovski et al., 2013). Some contributing factors to

this have been shown to be related to the high incidents of attacks on women being

sexually violent in nature (Galovski et al., 2013). Given this finding, I focused my study

on women sexual assault survivors.

**Sexual Assault**

*Definition and Description*

Sexual assault on women by men has been a factor in society, in every culture,

since the beginning of time. A sexual assault is classified as a sexual act perpetrated on a

person without consent, on a person without the ability to give consent, or on a person

without the ability to refuse, (Basile et al., 2014) through intimidation and/or risk of

injury (Zinzow et al., 2010). Sexual violence can be classified as any form of rape,

attempted rape, or being made to carry out any kind of sexual act on oneself or on

someone else, through verbal coercion or harassment, threats, or physical force.

Additionally, this can be with or without the inclusion of alcohol or other substances, and

with or without a weapon (Centers for Disease Control and Prevention [CDC], 2016).

Completed rape of a man against a woman is characterized as forced penile to

vagina penetration against her will, with or without a weapon. Sexual sodomy is

characterized penile to anal penetration against her will. Other forms of completed sexual assaults include penile, vaginal, or anal contact with the mouth (CDC, 2016).

For clarification and reference in later parts of the paper, it was important to classify an attempted sexual assault, unwanted sexual contact (CDC, 2016), and noncontact unwanted sexual experiences (Basile et al., 2014). An attempted sexual assault is classified as an attempt to carry out any of the aforementioned completed sexual assaults. Unwanted sexual contact is classified as nonconsensual, purposeful direct or indirect (through clothing) contact with a person's genital region, breast, anus, buttocks, or the inside of the thigh (CDC, 2016).

Sexual assault can also be perpetrated using no direct physical contact. This is referred to as noncontact unwanted sexual experiences (Basile et al., 2014). The type of sexual assault this falls into is sexual violence without physical contact, but rather with things like pornography, voyeuristic and exhibitionistic behaviors, threats to job, loved ones, or personal safety, and harassment (Basile et al., 2014).

*Sexual Assault Prevalence*

In the United States, it is estimated that 20% of women have been sexually assaulted in their lifetimes (Busch-Armendariz et al., 2011). The Federal Bureau of Investigation (FBI) reported that there were 1.8 million female sexual assault survivors in the United States from 1983 to 2002 (Buchwald et al., 2005). This does not count the women who did not survive or who did not report their assaults (Buchwald et al., 2005).

In a special 2016 report by the Bureau of Justice Statistics, which examined female sexual violence from 1994-2010, 270,000 sexual assaults were committed,

attempted, or threatened on females in the United States in 2010, averaging about 2.1 per 1,000 females. The age range for this report was 12 years of age or older (Planty et al., 2016). According to a 2012 report from the CDC, around one in five women and one in 71 men will report a rape during their lifetimes (Black et al., 2011). While sexual assault rates have fallen 74% since 1993, as of 2015, there were 248,000 reported cases of rape per year in the United States, with a rape occurring every 2 minutes (Rape, Abuse, & Incest National Network [RAINN], 2016).

Sexual assault has been connected to several psychological issues. Some of these issues include PTSD, depression, re-experiencing the events and flashbacks, self-injurious behaviors, substance abuse, dissociation, eating disorders, suicidal ideation, and sleep disorders (RAINN, 2016). It has also been connected to physical consequences, and fears over physical consequences, such as sexually transmitted diseases or pregnancy (RAINN, 2016). Sexual assault clearly appears to pervasively affect a survivor well past the actual event.

In a survey conducted by the Crime Victims Research and Treatment Center, 13% of the women reported having been victims of a completed rape, while 39% (of those reporting having been raped) also reported having been the victim of more than one rape (Buchwald et al., 2005). Most of these reported rapes happened when they were children or adolescents, with 29% of all these cases happening when the woman was younger than 11-years-old (Buchwald et al., 2005). Further, another 32% of these incidents happened between the ages of 11 and 17 (Buchwald et al., 2005). These findings illustrate previous sexual assault(s) as potential vulnerabilities for future sexual assaults.

In the following sections the rationale for the study and the gap in research are covered. These upcoming sections take the information that has already been discussed and fully develop a picture of the study for the reader. This information also establishes the research questions for this study.

## Statement of the Problem

Still today, PTSD is a term that mainly seems to evoke thoughts of military personnel or veterans who are having flashbacks years after combat (Anxiety.org, 2017). Although there is some research that has focused on sexual assault and PTSD in women and more cases of PTSD have been attributed to sexual assault in women, most of the research has focused on military populations (APA, 2021). The studies of PTSD and military populations primarily do not address the multitude of military women who develop PTSD from sexual assault (Parnell et al., 2018).

Rather, the focus has been on combat and PTSD (APA, 2021). With regards to women specifically, the focus has been on Active Duty or veteran women, with medical issues, but not PTSD, even when it would qualify (Parnell et al., 2018). Further, there are studies of alcohol issues and intimate partner violence in cases of military PTSD (Walton et al., 2018; Misca & Forgey, 2017). However, they do not incorporate sexual assault and PTSD in women (Parnell et al., 2018).

The rates of development of PTSD in people who have experienced trauma, such as sexual assault, are as high as 95% in the weeks after a sexual assault (Elklit & Christiansen, 2013). This is around 20% for women and 5% for men (Busch-Armendariz et al., 2011). It has been shown that women are twice as likely to develop PTSD from a

traumatic event than men, especially from a sexual assault (Smith et al., 2016), even

though it has been consistently shown that exposure to traumatic stressors is less in

women than men (Galovski et al., 2013).

## Conceptual Framework

In conducting formal research, one attempts to find and address the gaps in the

research, in order to help bring forth new findings and expose potential future research

areas. I endeavored to ascertain and fill the gaps in the literature especially as they apply

to broadening research of PTSD into civilian, noncombat populations. The research

questions examined whether there was a relationship between the occurrence of a sexual

assault and the development of PTSD in women who have been sexually assaulted,

whether there was a relationship between the presence of alcohol dependence/addiction

and sexual assault and the development of PTSD in women, and whether there was a

relationship between the presence of intimate partner violence and the development of

PTSD in women who have been sexually assaulted.

## Sexual Assault and PTSD

The review of literature strongly suggests that sexual assault affects all

populations. It results in detrimental psychological symptomology (Kuehn, 2011). Those

who have undergone traumas, such as sexual assault, are more apt to develop PTSD,

which can be incapacitating. Rates have been shown to be as high as 95% in the weeks

after a sexual assault (Elklit & Christiansen, 2013).

Nationally, rates of sexual assault in adults are as high as 20% for women and 5%

for men (Busch-Armendariz et al., 2011). While trauma affects both genders, the types of

traumas tend to vary by gender. Men are more liable than women to undergo every kind of trauma, except for sexual assault (Galovski et al., 2013). This information illustrates the need to research women and men separately, as they have different trauma and outcome experiences.

**Intimate Partner Violence**

The review of literature also suggests that intimate partner violence can strongly contribute to or worsen the symptoms of PTSD (Ullman et al., 2014). In the United States, every 9 seconds a woman is sexually or physically assaulted (National Coalition Against Domestic Violence [NCADV], 2015). Domestic violence has both negative physical and psychological effects, such as sexually transmitted diseases, bodily injuries, death, depression, suicidal ideation, and PTSD (Hsieh et al., 2009).

In cases where there is intimate partner violence, the sexual assault survivor is less likely to seek out therapeutic services (Starzynski & Ullman, 2014). Additionally, intimate partner blame and stigmatizing the survivor, increases PTSD symptoms (Ullman & Peter-Hagene, 2016). These are both factors that can likely exacerbate and already negative situation.

**Alcohol Abuse/Dependence and Sexual Assault**

In reviewing the literature, I found that men who have comorbid PTSD and alcohol issues report more alcohol cravings and legal issues (Lehavot et al., 2014). Alternatively, women report PTSD symptoms (Lehavot et al., 2014). Further, alcohol abuse is associated with more cases of and more severity of PTSD symptoms (Blancoa et al., 2013).

Theoretically, it is believed to try to quell the symptoms of reexperiencing, interfering thoughts, and other symptoms of PTSD (Ullman et al., 2013). Female sexual assault survivors use self-medication, including with alcohol (Ullman et al., 2013), as a coping device. Likely, this helps reduce the symptoms for a little while, but it may end up increasing the PTSD symptoms and/or causing chronic PTSD (Ullman, 2016).

The trauma associated with sexual assault is one most often related to PTSD (Sidran Institute, 2013). Issues such as alcohol dependence/addiction and the presence of intimate partner violence, appear to be factors in the potential development of or increase in severity of PTSD (Lehavot et al., 2014; Ullman et al., 2014). Better understanding these potential types of relationships, can likely assist in addressing the appropriate needs of survivors.

These gaps in research can provide an opportunity to help put more focus on these populations. Even with the research that is already published, new findings about the manifestation of PTSD in female sexually assault survivors have emerged. Many studies suggest the need to increase research and studies in these areas.

The main concept of my study was that, along with the literature review (as a guide) and the analysis of the studies that were gathered for conducting this meta-analytical study, experiential information was produced concerning three main points. These main points were as follows: whether there was a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted, whether there was a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women, and

whether there was a relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted. The meta-analysis was conducted using five to 10 studies per research question.

## Nature of the Study

The study was a quantitative meta-analysis. This facilitated the examination of previous published research articles. The design of my study was important in helping to understand that PTSD is not just combat related but affects different populations of people across varied traumatic events, including sexual assault.

Meta-analyses are touted for being precise and having impartiality (Hohn, 2020). A key part of this is while individual articles are examined and statistically evaluated, all the articles for a research question are synthesized into one value as well. This allows for stronger overall conclusions to be obtained about populations, as the small analyses of separate articles are brought together (Hohn, 2020).

Both the effect sizes and study descriptors were coded and displayed in tables in Chapter 4. The effect sizes were the dependent variables, while the descriptors served as the independent variables (Lipsey & Wilson, 2001). The study descriptors, or independent variables, were coded as follows: I1: (*N*) Number of Participants, I2: Assessment Method (Effect Size formula), I3: Subject Gender, I4: Subject Age Group, and I5: Year of Publication (DeCoster, 2009).

For this study, the effect sizes (dependent variables) were coded. The dependent variables were in keeping with the research questions. They were coded as follows: D1: Relationship between the occurrence of a sexual assault and the development of

posttraumatic stress disorder in women who have been sexually assaulted, D2:

Relationship between the presence of alcohol dependence/addiction and sexual assault

and the development of PTSD in women, and D3: Relationship between an intimate

partner violence and the development of posttraumatic stress disorder in women who

have been sexually assaulted.

In this study, I evaluated research articles as they pertained to the research

questions listed in the next section. As is standard in a meta-analysis, the effect sizes of

all the articles were calculated and evaluated. A random effects model, which states that

each study has its own discrete effect size (Lipsey & Wilson, 2001), was used, and the

effect size Cohen's *d*, which is used for studies with different population sizes, was used

(Ellis, 2010).

## Research Questions and Hypotheses

The study was conducted to examine the following research questions and the

hypotheses.

RQ1: Is there a relationship between the occurrence of a sexual assault and the

development of PTSD in women who have been sexually assaulted?

$H_0$1: The development of PTSD is not related to the occurrence of a sexual

assault in women.

$H_1$1: The development of PTSD is related to the occurrence of a sexual assault in

women.

RQ2: Is there a relationship between the presence of alcohol

dependence/addiction and sexual assault and the development of PTSD in women?

$H_0 2$: Presence of alcohol dependence/addiction and sexual assault are not related to the development of PTSD.

$H_1 2$: Presence of alcohol dependence/addiction and sexual assault are related to the development of PTSD.

RQ3: Is there a relationship between intimate partner violence and the development of posttraumatic stress disorder in women who have been sexually assaulted?

$H_0 3$: Intimate partner violence is not related to PTSD in cases of sexual assault in women.

$H_1 3$: Intimate partner violence is related to PTSD in cases of sexual assault in women.

## Definition of Terms

*Attempted Sexual Assault*: An attempted sexual assault is classified as an attempt to carry out any sexual assaults (CDC, 2016).

*Comorbidity*: The term comorbidity applies when there is the presence of two or more mental health issues (Degenhardt et al., 2003). As it applies to this study, research has reported that trauma is associated with comorbidity, including substance abuse, depression, and anxiety disorders (Smith et al., 2016). Further, comorbidity of PTSD and alcohol problems have especially been seen in women (Ullman et al., 2013).

*Intimate Partner Violence*: Intimate partner violence encompasses physical violence, sexual violence, psychological and physical violence, coercion for sexual acts or other acts, and stalking by a current or former intimate partner (Breiding et al., 2015).

An intimate partner could be a spouse, boyfriend, girlfriend, a casual date, or a casual sex partner. Also, it could be someone the woman lives with or not (Breiding et al., 2015).

*Noncontact Sexual Assault*: Noncontact sexual assault is sexual violence without physical contact, but rather with things like pornography, voyeuristic and exhibitionistic behaviors, threats to job, loved ones, or personal safety, and harassment (Basile et al., 2014).

*Posttraumatic Stress Disorder (PTSD)*: PTSD is in the category of trauma- and stressor-related disorders of the DSM-5. As with all disorders, it is one that must meet certain and specific criteria before the diagnosis can be applied. The main criterion is the presence of one or more direct or indirect traumas (APA, 2013).

*Rape*: Rape is a type of sexual assault that is defined as nonconsensual sexual penetration, which is any penetration, to any degree, of the vagina or anus with any part of the body or any object. Further, any oral penetration via any sex organ of someone else is also termed rape (RAINN, 2016).

*Sexual Assault:* A sexual assault is a sexual act perpetrated on a person without consent, on a person without the ability to give consent, or on a person without the ability to refuse (Basile et al., 2014) through intimidation and/or risk of injury (Zinzow et al., 2010). Sexual violence can be classified as any form of rape, attempted rape, or being made to carry out any kind of sexual act oneself or someone else, through verbal coercion or harassment, threats, or physical force, which can be with or without the inclusion of alcohol or other substances, and with or without a weapon (CDC, 2016).

*Unwanted Sexual Contact*: Unwanted sexual contact is classified as non-consensual, purposeful direct or indirect (through clothing) contact with a person's genital region, breast, anus, buttocks, or the inside of the thigh (CDC, 2016).

## Assumptions

Assumptions are basic items of the study that are somewhat under one's control and are necessary or the study would be moot (Simon, 2011). In a study with human participants one assumption would likely be that the participants would answer truthfully (Simon, 2011). In this study, which was a meta-analysis, the assumption is that the research articles used were accurate.

One of the main assumptions of this study was that women who are sexually assaulted will develop PTSD. Trauma types vary by gender. Men are more apt than women to encounter all types of trauma, aside from sexual assault (Galovski et al., 2013). Purportedly, women are twice as likely to develop PTSD after a sexual assault than men (Parker-Guilbert et al., 2014).

Another assumption of this study was an association between women who have been sexually assaulted and PTSD, and comorbid alcohol dependence/addiction. Trauma is associated with comorbidity, including substance abuse (Smith et al., 2016). Comorbidity of PTSD and alcohol problems have especially been seen in women (Ullman et al., 2013).

Another assumption of this study was a relationship between intimate partner violence, sexual assault, and PTSD. Interpersonal violence against women is associated

with higher rates of PTSD (Galovski et al., 2013). Further, it is a leading cause of PTSD

in women (Moser et al., 2015).

## Scope and Delimitations

Delimitations and the scope of the study define the boundaries of the study. These

items are under one's control (Simon, 2011). In a meta-analysis, certain things are under

one's control that are not in other types of studies.

The first of these was the population chosen for this study. For this study, women

were included. Men and children were not included. As discussed in the previous section,

women are two times as likely to develop PTSD than men (Smith et al., 2016).

Additionally, women are more apt to be subjected to interpersonal violence than men

(Galovski et al., 2013).

Secondly, this study was a meta-analysis. In these types of studies live

participants are not part of the study. The participants were previous research articles (see

Lipsey & Wilson, 1993). In conducting this study, I had control over selecting the correct

articles for my research questions.

The purpose of this study was to examine the relationship between sexual assault

in women and the development of PTSD. As previously discussed, many studies on

PTSD focus on military populations and combat PTSD (APA, 2021), rather than civilian

sexual assaults and PTSD. It is important to add research to this topic.

## Limitations

Limitations of a study are possible weaknesses that are out of one's control

(Simon, 2011). Many limitations can stem from the populations used or the reliability of

the participants. In a meta-analysis, these types of limitations can occur if the research articles are unreliable. When choosing research articles for this study, I took careful steps to choose articles that best represent the study and allows for the most accurate outcomes.

In a meta-analysis, because articles are the participants instead of live participants (see Lipsey & Wilson, 1993), this can pose a limitation. As discussed above, it is critical to keep this potential limitation in mind when choosing articles. This limitation could also be a benefit in that the writer has more control in picking and controlling participants (research articles), than someone who is dealing with live participants. Thus, the important thing to keep in mind when dealing with this limitation is that it does not have to be a detrimental limitation.

## Summary and Transition

Chapter 1 provided a statement of the problem addressed in the study. Most of the PTSD research has focused on military populations (APA, 2021), and these studies do not appear to address the multitude of military women who develop PTSD from sexual assault (Parnell et al., 2018).

The purpose of this study was to analyze the relationship between rape and the consequent development of PTSD in women, also as related to comorbidity of alcohol dependence/abuse and intimate partner violence. Negative psychological and medical factors have been linked with sexual assault (Kuehn, 2011).

Included in this chapter was reporting on the incidence and prevalence of PTSD; as well as a brief discussion of the clinical and diagnostic criteria. Rates of PTSD over

the lifetime in women have been shown to be 50-95%, after a sexual assault (Elklit & Christiansen, 2013).

Additionally, the chapter briefly identified key factors that prior research has found to be predictive of post assault PTSD. These include the presence of alcohol dependence/addiction and intimate partner violence. I also described the research questions and research hypotheses. The assumptions, limitations, and scope and delimitations of the study were presented.

In chapter 2, I review the literature on this topic. I introduce the history and evolution of the awareness and proper classification of PTSD. After the background and historical information, I discuss the focus of this study, which was on female civilian populations, including the relationship between sexual assault and PTSD. This focus of the study was examined as it related to various factors, such as: alcohol dependence/addiction and intimate partner violence.

In chapter 3 I provide a discussion of the research design and approach, and the methodology. I conclude the chapter with a presentation of the statistical methods. In chapter 4 I discuss the results of the statistical procedures conducted, the research design and approach, the settings and databases for gathering articles, and the statistical methods, and ending with population effects, which are the crux of a meta-analysis. In chapter 5 I discuss the interpretations of the findings, validity and reliability, future research, the limitations of the study, and positive social change will end the chapter.

Chapter 2: Literature Review

**Introduction**

Throughout the years, the views about sexual assault, its victims and survivors, and victim's rights and laws have evolved (Tracy et. al., 2012). In the United States, sexual assault has been viewed as a crime and the victims and survivors have laws helping them to be able to prosecute their attackers (Tracy et. al., 2012). Additionally, there is more understanding about sexual assault itself and what victims and survivors endure during and after the assault, amongst those who treat and provide services to these populations (Parker-Guilbert et al., 2014).

Survivors typically face many medical, physical, and psychological issues (Parker-Guilbert et al., 2014). Sexual assault affects all genders, races, and cultural groups (Parker-Guilbert et al., 2014). Women are more likely to exhibit depression and anxiety symptoms and are twice as likely to develop PTSD after a sexual assault than men (Parker-Guilbert et al., 2014).

Women who have been sexually assaulted also show high incidence of eating disorders, dissociative disorders, and personality disorders (O'Brien et al., 2015). Alternatively, men who have been sexually assaulted also show a high incidence of dissociative disorders and personality disorders, as well as, suicidal ideation, attention deficit hyperactivity disorders, conduct difficulties and/or disorder, and bipolar disorders (O'Brien et al., 2015). According to RAINN (2016), there is a high incidence of substance abuse in both genders of survivors.

There are high rates of sexual assault in the United States (RAINN, 2016). One in six women will experience rape or attempted rape during their lives, as compared to one in 33 men (RAINN, 2016). While men are typically exposed to more traumatic events over their lifetimes than women, with a rate of 60% to 50% respectively (Galovski et al., 2013), and they are victims of sexual assault, women are more likely to be assaulted sexually (Black et al., 2011). Women are also more likely to exhibit depression and anxiety symptoms and are twice as likely to develop PTSD after a sexual assault than men (Parker-Guilbert et al., 2014).

Women and men may also have different perspectives of attempted and completed sexual assaults, with women tending to exhibit more generalized stress following a sexual assault than men (Parker-Guilbert et al., 2014). Likely, this influences the outcomes and psychological symptomology. These differing perspectives about sexual assault may contribute to the higher incidence of PTSD in women than in men when a sexual assault has occurred. In addition, as the incidence of sexual assault and PTSD from the assault are much higher in women than in men, it is important to examine this connection in women (Parker-Guilbert et al., 2014), thus this population was the focus of this study.

## Historical Perspectives of Posttraumatic Stress Disorder

### Early Origins

Before World War I (WWI), the mentally ill were often maltreated and viewed with distrust and contempt (Rae, 2007). Those who did not appear to be normal were allegedly singled out as *mentals* and treated as pariahs (Rae, 2007). Further, doctors and

nurses did not have a great deal of expertise in proper assessment, diagnosis, and treatment of the mentally ill populations (Rae, 2007). Today, PTSD still appears to be a mystery in many regards. However, prior to WWI, it appears people suffered with PTSD and with losing their rights, with no hope of help.

Civilian health personnel were starting to change their views of the mentally ill and mental illness during WWI before military health personnel (Rae, 2007). At this time, the military continued to equate mental illness with malfunctioning morals (Rae, 2007). When military medical personnel were first introduced to the physical and psychological components of PTSD, they did not acknowledge it as a viable result of being in combat and being exposed to traumatic situations (Uomoto & Williams, 2009). During WWI, PTSD was allegedly first called *hysteria* and then it received the moniker *shell shock* (Rae, 2007).

According to Southard (1919), shell shock was based in hysteria and could be equated with the psychoneurotic beliefs touted by such experts as Charcot, Weir Mitchell, Janet, and Freud. He further stated that shell shock could not be viewed as a direct problem from trauma, but rather trauma associated with neurosis. His beliefs seem to have mirrored many of the beliefs of trauma and its effects at the time (pgs. 187-199).

Nurses and doctors who were part of WWI exhibited many of these same symptoms. However, they did not receive a diagnosis of shell shock (Rae, 2007). Instead, they received such diagnoses as *debility* or *neurasthenia*. These were classified as nervous system impediments or fatigue and were believed to be part of severe bodily and

mental depression (Rae, 2007), which helps illustrate the start of the perception of PTSD as a military condition and not one that affects civilian or noncombat populations.

**Modern- and Present-Day Military Populations**

Many studies are focused on PTSD. But most studies of the structure of PTSD are with veterans' populations (APA, 2021) rather than those populations pertaining to sexual assault or rape, PTSD, and women (Parnell et al., 2018). The first formal diagnoses of PTSD were made in veterans' populations, specifically Vietnam veterans (Hapke et al., 2006).

These early studies on veteran populations did not appear to incorporate the 17 items that were found in the diagnostic criteria of the DSM-IV for PTSD, even when it was the current manual (Feuer et al., 2005). Veterans studies seem to be at the very start of catching up to the current version of the DSM-V. Studies are beginning to suggest that PTSD is not a solitary disorder, but rather a disorder that encompasses subtypes, as in the DSM-5 (Graham et al., 2016). However, even studies on sexual assault in the military have seemingly not been widely conducted, with the focus of most PTSD studies, with military populations, apparently being on combat PTSD (APA, 2021), and not PTSD from sexual assault (Parnell et al., 2018).

**General Populations**

With the background of the evolution and recognition of PTSD established, the focus of this study is on female civilian populations. PTSD has become a far extending health issue, into realms other than veteran populations. As many as 50-95% of the sexual assault survivors in the United States have developed and subsequently suffered with

PTSD (Elklit & Christiansen, 2013). High rates of reported PTSD among sexual assault survivors indicates a need for additional studies of the phenomena.

**Literature Search Strategy**

The research searches for this study occurred over an extensive period, using various branches of EBSCO and various key terms and phrases. Important to note, is that some of the researched various key terms and phrases were researched and not used for the final paper. This was especially true in early searches prior to the final selection of the research questions. These EBSCO branches that were used included Academic Search Premier, PsycARTICLES, PsycINFO, CINAHL plus, and ERIC.

The major various key terms and phrases used for these searches were as follows: *sexual assault and PTSD, sexual assault and posttraumatic stress disorder, PTSD and comorbidity, PTSD sexual assault and comorbidity, sexual assault, alcohol abuse and PTSD, sexual assault, alcohol addiction and PTSD, alcohol abuse and PTSD, Alcohol addiction and PTSD, PTSD, trauma effects, sexual assault, shell shock, World War I, PTSD and the military, veterans and trauma, trauma in women, sexual assault and trauma, rape, domestic violence and sexual assault, perceptions of control and sexual assault, sexual assault AND PTSD AND intimate partner rape, sexual assault AND PTSD AND intimate partner violence, sexual assault AND PTSD AND family members, sexual assault AND PTSD AND strangers, sexual assault AND PTSD AND comorbid alcohol dependence, sexual assault AND PTSD AND social supports, sexual assault AND PTSD AND coping, sexual assault AND PTSD AND self-blame, sexual assault AND PTSD AND previous traumas, sexual assault AND PTSD AND previous sexual assaults, sexual*

*assault AND PTSD AND revictimization, PTSD sexual assault and ethnicity, PTSD and*

*African American women, PTSD and Native American women, PTSD and Hispanic*

*women, Latina Women, PTSD and Asian women, PTSD sexual assault and ethnicity,*

*PTSD sexual assault and education level, PTSD sexual assault and comorbidity, PTSD*

*sexual assault and substance abuse, PTSD sexual assault and SES, PTSD sexual assault*

*and intimate partner abuse, PTSD sexual assault and intimate partner violence, PTSD*

*sexual assault and intimate partner physical abuse, PTSD sexual assault and intimate*

*partner sexual abuse, sexual assault PTSD and intimate partner abuse, sexual assault*

*PTSD and intimate partner violence, sexual assault PTSD and intimate partner physical*

*abuse, sexual assault PTSD and intimate partner sexual abuse, PTSD sexual assault and*

*support systems, PTSD sexual assault and relationship to perpetrator, PTSD sexual*

*assault and known perpetrator, PTSD sexual assault and unknown perpetrator, PTSD*

*sexual assault and a relative as a perpetrator, PTSD and women, sexual assault and*

*women, PTSD sexual assault and retraumitization, PTSD sexual assault and re-*

*victimization, PTSD sexual assault and sexual orientation, PTSD sexual assault and*

*physical health, retraumitization in women, retraumitization, general psychopathology,*

*polysubstance use in sexual assault victims, polytrauma, substance abuse in women,*

*alcohol abuse in women, alcohol abuse and PTSD, meta-analysis, PTSD and educational*

*level, PTSD and intellectual level, PTSD sexual assault and social supports, PTSD and*

*previous sexual abuse, PTSD sexual assault and coping abilities, PTSD sexual assault*

*and blame from others, PTSD sexual assault and self-blame, and PTSD sexual assault*

*and disclosure, abstract writing, conceptual frameworks, ethnicity, sexual assault, and*

*PTSD, SES, sexual assault, and PTSD, substance abuse, sexual assault, and PTSD.*

**Relationship Between Sexual Assault and Posttraumatic Stress Disorder (PTSD)**

The national rates of sexual assault in adults have been reported as high as 20%

for women and 5% for men (Busch-Armendariz et al., 2011). Both genders experience

traumas; however, the types of traumas vary by gender. Men are more apt to undergo

every type of trauma than women except for sexual assault (Galovski et al., 2013).

Sexual assault affects women in many ways. Survivors exhibit psychological

issues including depression, re-experiencing the events and flashbacks, self-injurious

behaviors, substance abuse, dissociation, eating disorders, suicidality, and sleep disorders

(RAINN, 2016). Survivors also exhibit physical issues, and fears over physical

consequences, such as sexually transmitted diseases or pregnancy (RAINN, 2016).

Sexual assault affects all populations. It can result in detrimental psychological

symptomology (Kuehn, 2011). Those who have undergone traumas, such as sexual

assault, are more apt to develop PTSD, which can be incapacitating (Elklit &

Christiansen, 2013). Rates have been shown to be as high as 95% in the weeks after a

sexual assault (Elklit & Christiansen, 2013). Sexual assault is one of the traumas most

often related to PTSD (Sidran Institute, 2013).

Issues such as alcohol dependence or addiction can be factors in the potential

development of or increase in severity of PTSD (Ullman et al., 2013). In this study, when

referring to alcohol dependence/addiction, it encompasses the development of this

disorder or condition either because of the sexual assault or as a pre-existing condition

prior to the sexual assault. The key component was that alcohol use or abuse by the survivor was connected to the sexual assault, either prior to, during, or afterwards. Also, in this study, when the term comorbidity is used, it refers to the development of alcohol dependence/addiction either as a pre-existing condition prior to the sexual assault or after the sexual assault.

An issue such as intimate partner violence can also be a factor in the potential development of or surge in seriousness of PTSD symptoms (Galovski et al., 2013). In this study, when referring to intimate partner violence, this means all types of violence, including physical and sexual. Additionally, this study focused on heterosexual males perpetrating violence on heterosexual females.

I examined sexual assault and its relation to PTSD. Additionally, other factors I examined were alcohol dependence/addiction and intimate partner violence, and their relationship to PTSD and sexual assault. The rationale for choosing these factors was discussed in the following sections.

**Intimate Partner Violence**

Intimate partner violence encompasses physical violence, sexual violence, psychological violence, coercion for sexual acts or other acts, and stalking by a current or former intimate partner (Breiding et al., 2015). An intimate partner could be a spouse, boyfriend, girlfriend, a casual date, or a casual sex partner. Also, it could be someone the woman lives with or not (Breiding et al., 2015). As stated throughout this paper, for the purposes of this study, the intimate partner violence referred to a heterosexual male

perpetrating on a heterosexual female. Additionally, as stated, all types of intimate partner violence were addressed in this study.

The section will begin with a discussion of domestic violence and positive and negative social supports for background and then segue specifically to intimate partner violence. Important to include, is a background on domestic violence, as intimate partner violence is a sub-category of domestic violence. Additionally, it is important to show the impact positive or negative social supports can have, to help illustrate the impact of intimate partner violence.

### *Domestic Violence*

Domestic violence typically produces trauma in all of those affected, including the victim or victims, other family members, and communities at large (Hsieh et al., 2009). Domestic violence, including physical and sexual assaults, economic and psychological abuse, and abusive control (Salcioglu et al., 2016) has been a part of history, families, and societies, since the beginning of time. Purportedly, it crosses all cultures and relationship types, (Waldman-Levi et al., 2015) all ages, socioeconomic statuses, genders, sexual orientations, religions, and nationalities (NCADV, 2015).

Examining all the violence in the world, domestic violence accounts for 15% of the total (NCADV, 2015). The annual rates in most countries have increased over the last several decades. In the United States, every nine seconds a woman is sexually or physically assaulted (NCADV, 2015).

Domestic violence has negative physical effects, such as sexually transmitted diseases, bodily injuries, and even death (Hsieh et al., 2009). Additionally, it has negative

psychological effects such as depression, suicidal ideation, and PTSD (Hsieh et al., 2009). Both the physical and psychological effects have suggested an outcome of lower life quality (Hsieh et al., 2009).

Because of all these reported various social, emotional, and physical factors, various forms of intervention are required, including both medical and mental health services (Hsieh et al., 2009). Additionally, because of the legal implications, law enforcement and judicial services (Hsieh et al., 2009) would likely be useful. Also, educational services (Hsieh et al., 2009) may help benefit a survivor in learning more about domestic violence and her options. The complexities of these factors likely contribute to a better understanding of multi-level effects of trauma (Hsieh et al., 2009).

*Support System*

The section discusses social support systems following a sexual assault. Whether a sexual assault survivor has a positive or negative support system supposedly impacts her outcomes greatly, which likely affects all areas of her life. Most sexual assault survivors, around 80% or more, apparently report their experience to at least one person (Ullman & Peter-Hagene, 2016).

Having a strong social support system is likely a potent guardian against poor outcomes after a sexual assault (Sigurvinsdottir & Ullman, 2016). Because not all women who are sexually assaulted develop PTSD or have negative long-term outcomes, there are likely certain things that help with a more positive outcome. One of these things is having positive social supports, which has been shown to have a strong shielding effect (Zang et al., 2017).

Typically, a survivor supposedly receives both positive and negative social support (Ullman & Peter-Hagene, 2016). It has been suggested that positive social reactions from others are equated with lower or non-existent PTSD symptoms. Alternatively, negative social reactions are directly correlated with PTSD symptoms (Ullman & Peter-Hagene, 2016).

Social supports do not only come from family or friends. Social supports also encompass service and professional people, related to the situation, acquaintances, colleagues, and the like. When a sexual assault survivor has positive social supports from all areas of her life, including family, friends, police, rape crisis centers, acquaintances, she is more likely to seek out therapeutic counseling services (Starzynski & Ullman, 2014).

Without positive support after a sexual assault, a woman is vulnerable to PTSD. This compounds the situation, as she was already vulnerable to developing PTSD just from the sexual assault itself (Elklit & Christiansen, 2013). Additionally, she is also vulnerable to things such as maladaptive coping, self-blame, alcohol abuse or dependence, depression, interpersonal problems, anxiety, phobias, paranoia, skewed world, self, and others' viewpoints, irritability, just to name a few (Relyea1 & Ullman, 2015).

If a woman who has been sexually assaulted develops maladaptive coping techniques, this will only likely compound the difficulties already present stemming from the sexual assault. Because these skewed coping techniques are attempts to reduce the distress from the sexual assault, they likely simply end up compounding the existing

problems and adding to them (Relyea1 & Ullman, 2015). For example, a woman who was sexually assaulted may socially withdraw in an attempt to feel better, but instead she likely just ends up creating more problems from the maladaptive social withdrawal.

In a community sample study of sexual assault survivors, who had cumulative traumas, their PTSD symptoms increased (Ullman et al., 2014). Theoretically, it is believed this was likely due to the use of increased maladaptive coping behaviors to deal with the traumas. This in turn increased the trauma and the PTSD (Ullman et al., 2014).

Negative social support does not just come in the form of saying negative or victim blaming things. Additionally, it can come from things such as controlling or infantilizing behaviors (Peter-Hagene & Ullman, 2014) from either abusive or well-meaning family members or friends. Infantilizing behavior from others and lack of control over the situation can increase a survivor's PTSD and alcohol or substance intake, if it is applicable (Peter-Hagene & Ullman, 2014).

For example, offering to assist the survivor in navigating the legal system, going with her to the police station, being there when she seeks medical treatment, or assistance with finding psychological services if she is ready, are positive support examples. However, trying to force the survivor to file a police report or forcing them to go to a therapist, are examples of negative support (Peter-Hagene & Ullman, 2014). The well-meaning family member may believe that infantilizing the survivor is a loving, supportive thing, which it likely has the same detrimental effects as an abusive or negative support (Peter-Hagene & Ullman, 2014).

Further, it has been suggested that the positive supports described above, can improve the survivor's own perception that she has a good global support system. In addition, it can help the survivor feel more in control over her own recovery (Peter-Hagene & Ullman, 2014). An outlook such as this, coupled with the supports, likely helps the survivor's mental and physical health (Peter-Hagene & Ullman, 2014).

**Intimate Partner Violence**

In cases of intimate partner violence, women are most often the victims, with their male intimate partners making up most of the perpetrators (Hsieh et al., 2009). The statistics for intimate partner abuse against women are as follows: One in three women has been physically assaulted, one in five women has been brutally assaulted, and one in seven women has been stalked (NCADV, 2015). During the years 2003 through 2008, there were 142 women murdered in their place of business by an intimate or former intimate partner (NCADV, 2015).

Women are more likely to experience interpersonal violence than men, and interpersonal violence is associated with higher rates of PTSD (Galovski et al., 2013). Intimate partner violence specifically, is a reported leading cause of PTSD in women (Moser et al., 2015). Women are more likely than men to be assaulted by an intimate partner (Brown et al., 2015).

Every year, 1.3 million women are sexually and/or physically assaulted by an intimate partner, with 17.4% of women experiencing at least one sexual assault during their life (Brown et al., 2015). Sixty percent of sexual assaults are committed by someone the victim knows (Earle, 2009), either by an intimate partner, relative, or friend (Brown et

al., 2015). Another report suggests from 2005-2010, 78% of sexual violence was committed by an intimate partner, family member, friend, or an acquaintance (Planty et al., 2016).

If a woman lives in a hostile or negative home environment, where she is receiving threatening behavior, this also contributes to maladaptive coping, self-blame, alcohol abuse or dependence, depression, interpersonal problems, anxiety, phobias, paranoia, skewed world, self, and others viewpoints, irritability, among other symptoms (Relyea1 & Ullman, 2015). Further, it can strongly contribute to or worsen the symptoms of PTSD (Ullman et al., 2014). In cases where there is intimate partner violence, the sexual assault survivor is less likely to seek out therapeutic services (Starzynski & Ullman, 2014). Additionally, intimate partner blame and stigmatizing the survivor, increases PTSD symptoms (Ullman & Peter-Hagene, 2016).

**Alcohol Abuse/Dependence After Sexual Assault**

Studies suggest that alcohol abuse/dependence affects 14% of the population (Lehavot et al., 2014). As has been discussed in this paper, sexual assault produces both psychological and physical issues. Research has suggested that trauma is associated with comorbidity, including substance abuse, depression, and anxiety disorders (Smith et al., 2016).

Further, comorbidity of PTSD and alcohol dependence/abuse has especially been seen in women (Ullman et al., 2013). Theoretically, to try to quell the symptoms reexperiencing, interfering thoughts, and other symptoms of PTSD (Ullman et al., 2013), female sexual assault survivors use self-medication, including with alcohol (Ullman et

al., 2013), as a coping device. Likely, this helps reduce the symptoms for a little while, but it may end up increasing the PTSD symptoms and/or causing chronic PTSD (Ullman, 2016).

Avoidance is a common coping strategy employed by sexual assault survivors (Ullman et al., 2013). Unfortunately, it only serves to do the opposite by increasing the symptoms, and likely not being helpful in overcoming current symptoms (Ullman et al., 2013). Alcohol is one mechanism a sexual assault survivor may use to be avoidant (Ullman et al., 2013). Avoidant behavior of this type, likely not only increases symptoms and does not help with overcoming present symptoms, but also adds more physical and psychological issues to the situation (Ullman et al., 2013).

Studies have suggested that female sexual assault survivors, who have histories of prior traumas, like child abuse, and/or prior sexual assaults, are more apt to engage in alcohol use/abuse to deal with PTSD symptoms (Ullman et al., 2013). People with comorbid PTSD and alcohol abuse/dependence tend to have a history of childhood abuse and/or sexual assault (Blancoa et al., 2013). Additionally, alcohol abuse is associated with more cases of and more severity of PTSD symptoms (Blancoa et al., 2013).

Women experiencing trauma who self-medicate with alcohol are more likely to engage in risky behaviors (Ullman, 2016). Because they are using alcohol to cope with the intrusive thoughts and other symptoms, they likely reduce their inhibitions (Ullman, 2016). They may then be easily coerced into sexual acts or other acts to which they may not consent when sober, including being sexually assaulted again (Ullman, 2016). Their

vulnerability may open them up to waiting perpetrators, traumatizing them all over again (Ullman, 2016).

In comparing men's and women's issues related to PTSD and alcohol abuse/dependence, once again, it likely helps illustrate the disproportionate levels of sexual assault and PTSD between the genders. Men who have comorbid PTSD and alcohol issues, tend to report more alcohol cravings and legal issues (Lehavot et al., 2014). Alternatively, women report PTSD symptoms, sexual assaults and victimization, avoidance, and social issues (Lehavot et al., 2014).

Women who drink tend to receive negative social support (Lorenz & Ullman, 2016). They may be viewed as promiscuous or deserving of an assault, because they were apparently asking for it to happen. This can result in putting the blame on the victim instead of the perpetrator (Lorenz & Ullman, 2016).

High risk behaviors can contribute to life-threatening health issues as well. Traumatized, female sexual assault survivors are at a higher risk for contracting HIV and other sexually transmitted infections, especially in cases where alcohol abuse is combined with trauma (George et al., 2014). Sexually traumatized women report higher levels of sexual risk taking and having more sexual partners than non-traumatized women (George et al., 2014). The likelihood is a strong cyclical negative effect. Once a woman has been sexually traumatized, she is more likely to respond by using poor coping mechanisms, which in turn makes her more vulnerable to further trauma exposure (George et al., 2014).

The trauma associated with sexual assault is one most often related to PTSD (Sidran Institute, 2013). Issues such as alcohol dependence/addiction and the presence of intimate partner violence, appear to be factors in the potential development of or increase in severity of PTSD (Lehavot et al., 2014; Ullman et al., 2014). Better understanding these potential types of relationships, likely can assist in addressing the appropriate needs of survivors.

<div align="center">

**Meta-Analysis**

</div>

**Techniques and Benefits**

Meta-analysis is formally defined as a statistical analysis of various studies brought together into one cohesive study (Cooper et al., 2009). Further, it is a type of design where the research articles themselves are examined, rather than people (Lipsey & Wilson, 2001). In a meta-analysis, questions that have been thoroughly researched and studied are examined, in order to draw conclusions (Arvey & Chan, 2012). These conclusions can likely benefit future research and proper identification and treatment of psychological disorders and medical issues.

Meta-analyses are quantitative processes employed to take various pertinent studies and meld the results statistically (Borenstein et al., 2009). While the term meta-analysis is commonly used, some other terms that are used interchangeably for this type of study are research synthesis, research review, or systematic review (Cooper, 2010). Starting in the late 1980's and into the 1990's, writers have shifted away from the more narrative based studies towards systematic reviews and meta-analyses (Cooper, 2010).

Meta-analyses are used in a variety of fields, including medical, biomedical, the social sciences, and numerous other fields not related to these. However, meta-analyses have their origins in the social and behavioral sciences (Littell et al., 2008). Also, while many studies can be used for a thorough multi-leveled meta-analytic picture, a meta-analysis can be conducted with as little as two studies (Littell et al., 2008).

In conducting a thorough meta-analysis, common sense posits that a person will encounter a wide range of population sizes among the articles. Just as it is thought that one cannot conduct a meta-analysis without using large amounts of research articles, it is also erroneously believed that the population sizes for every article needs to be large (Littell et al., 2008). For a meta-analysis, even single-subject designs can be used (Littell et al., 2008).

While there are many ways to adapt and conduct meta-analyses, the quality of the articles used must be good (Littell et al., 2008). When one conducts a meta-analysis, it is not with the purpose of improving the already published articles. Thus, the higher the quality of the research, the better the meta-analysis (Littell et al., 2008).

**Rationale and Procedure**

When examining the rationale for conducting a meta-analysis, the main thing is that doing a quantitative meta-analysis allows for an effective way to condense extensive amounts of research studies and information (Wolf, 1986). Further, it has been shown that meta-analysis is effective in achieving stronger conclusions about a population (Hohn, 2020). This is due to the factor that besides calculating effect sizes for each article, all the articles for a research question are synthesized into one value as well

(Hohn, 2020). In addition to this, calculating the weighted mean effect size for each research question, mitigates much of the sampling error that may be present (Ellis, 2020).

## Study Selection

For this study around 5-10 articles were selected for each of the three research questions. They were researched and selected using various databases of EBSCO. These databases included: PsycINFO, PsycARTICLES, CINAHL Plus, ERIC, MEDLINE, Social Sciences Citation Index, ScienceDirect, SocINDEX, PsycEXTRA, Science Citation Index, PsychiatryOnline, Education Source, Expanded Academic ASAP, and ScienceDirect.

Numerous searches utilizing various terms, and in various combinations have been suggested to improve the efficacy of a literature search (Bown & Sutton, 2010). The search terms that were used to procure the articles included: sexual assault and PTSD, sexual assault and posttraumatic stress disorder, sexual assault and PTSD in women, sexual assault and posttraumatic stress disorder in women, sexual assault AND PTSD AND comorbid alcohol dependence, alcohol abuse in women who have been sexually assaulted, alcohol dependence in women who have been sexually assaulted, alcohol abuse and PTSD, PTSD sexual assault and comorbidity, PTSD and alcohol abuse comorbidity, PTSD and alcohol dependence comorbidity, domestic violence and sexual assault, sexual assault AND PTSD AND intimate partner violence, sexual assault AND PTSD AND intimate partner abuse, sexual assault AND PTSD AND intimate partner domestic violence, and sexual assault AND PTSD AND intimate partner assault.

The articles selected were between the years 2010 and 2020. Older articles were excluded, unless they were pertinent enough to enhance the study. All the articles came from English speaking journals. No books were used, and only published articles were included. As the effect sizes were utilized in the various articles, articles where the effect sizes were not attainable were excluded.

## Future Studies and Implications

It is important to focus on this study, while also looking towards the future of research in these areas and beyond. Factors such as childhood traumas, ethnicity, socio-economic status (SES), educational level, and sexual orientation, appear to be factors in the potential development of PTSD. Better understanding how the development of PTSD in women sexual assault survivors is affected by factors such as these, can likely have far reaching implications for diagnosis, treatment, and a more universal understanding of these populations.

### Childhood Traumas

One important thing to consider for future studies is to examine childhood physical and sexual assaults in conjunction with adulthood outcomes, and the development of posttraumatic stress disorder. Childhood traumas, like physical or sexual assaults, are strongly linked to mental health issues later in life, including but not limited to, alcohol abuse/dependence and PTSD (Ullman & Peter-Hagene, 2016). Around 60% of sexual assault survivors will develop PTSD (Ullman & Peter-Hagene, 2016).

Childhood sexual assault is also associated with physical and medical issues (Ullman & Peter-Hagene, 2016). Many of these issues can occur later in life, well past

the time of the sexual assault. Some of these issues include heart disease, liver disease, emphysema, and diabetes (Brady & Back, 2012).

**Ethnicity**

Also, it is important to examine different ethnic populations. While all women are vulnerable to the things discussed in this study, looking at different ethnic groups may be beneficial. Therefore, this section covered the differences among ethnicities, as related to future potential topics of research.

Similar to Caucasian women, one in five Black/African American women is sexually assaulted (Long & Ullman, 2016). However, it has been suggested that Black/African-American women have more issues with alcohol (Long & Ullman, 2016) and other chronic mental disorders (Lipsky et al., 2016) than Caucasian or Latina women. This could potentially affect re-victimization and high risk behaviors (George, 2014).

Black/African American and Hispanic/Latina women are more likely to experience domestic violence than Caucasian women (Lipsky et al., 2016). Further, it has been suggested that Black/African American and Hispanic children were more prone to being witnesses to both physical and sexual violence than Caucasian children (Skybo, 2005). As stated, this is associated with higher rates of PTSD (Galovski et al., 2013; Ullman & Peter-Hagene, 2016), and is the leading cause of PTSD in women (Moser et al., 2015).

Another revelation is that not all women sexual assault survivors are treated equally in disclosure and in negative or positive reactions from others. Additionally, these differences could likely affect outcomes and the development of PTSD (Skybo, 2005).

Immediate reporting following sexual assault is highest among Caucasian women (Ullman, 2010). It has been suggested that minority women, who were sexually assaulted, were met with more negative responses from perceived social supports (Ullman & Filipas, 2001) and were more afraid of being blamed after reporting the sexual assault (Ullman, 2010), than Caucasian women, likely leaving some to suffer in silence instead of getting help for traumatic symptoms (Cuevas et al., 2015).

One possible reason for this may be ensconced in cultural and traditional views. In Black/African American and Hispanic cultures, a woman is viewed as more responsible for a sexual assault, than in Caucasian cultures (Ullman & Filipas, 2001). Caucasian populations are also less likely to engage in victim blaming than Black/African American or Hispanic populations (Ullman, 2010).

Much like Caucasian women, Asian women received fewer negative reactions (Ullman & Filipas, 2001). However, Asian women are encouraged to remain quiet about sexual assaults, typically by those who still view sexual assault as cultural shame (Ullman, 2010). Further, many Asians with these beliefs also view therapeutic intervention or services negatively (Ullman, 2010).

Black/African American women seem to face the largest amount of scrutiny in their communities when it comes to sexual assault (Ullman & Filipas, 2001). Because of this, they are more apt try to deal with the aftermath more internally, as opposed to telling others (Ullman, 2010). Also, because of this, they are less likely to seek help (Ullman, 2010).

However, Hispanic/Latina and mixed-race women, experience more stigmatization from their perceived social supports and more self-blame (Ullman, 2010). Some likely reasons for this may be the stringent Catholic roots of Hispanic populations and the traditional view of maintaining one's chastity before marriage (Ullman & Filipas, 2001). Another likely contributing factor is the more traditional male-centric cultural views of Hispanic populations (Cuevas et al., 2015).

Additionally, while sexual assault rates are lower for Hispanic/Latina women as compared to Caucasian women, Hispanic/Latina and mixed-race women suffer more life-threatening and injurious assaults (Ullman & Filipas, 2001). Hispanic/Latina women also have more feelings of shame, utilize more avoidant coping methods (Ullman & Filipas, 2001), manifest more stress related issues (Cuevas et al., 2015), and are less likely to disclose than other women (Ullman & Filipas, 2001). Further, Hispanic/Latina women are more apt to report suicidal ideation, substance abuse, eating disorders, and depression than Caucasian women (Cuevas et al., 2015). Part of this may be attributed to the purported negative reactions that surround disclosure (Ullman & Filipas, 2001).

These factors likely have far-reaching implications for outcomes. Hispanics/Latinas and mixed-race, non-Asian women seem to receive the most negative responses, tend to be more avoidant, and tend to engage in self-blame (Ullman & Filipas, 2001). While Hispanic/Latina women do not face more traumatic experiences than other groups (Cuevas et al., 2015), their assaults are more likely to be life threatening and injurious (Ullman & Filipas, 2001). All these factors may make them more vulnerable to

developing PTSD, as they are all strongly related to PTSD development (Ullman & Filipas, 2001).

Studies are limited among Native (American Indian and Alaskan Native) women's populations. However, it has been shown that Native women have a high incidence of all types of abuse, including sexual abuse, rape, and physical abuse (Farley et al., 2016). However, while they have the highest rates of sexual assault (Gebhardt & Woody, 2012); they also have the lowest rates of reporting their sexual assaults (Ullman, 2010).

Native women in a San Francisco study, who were in substance abuse treatment, reported an 86% level of a history of physical abuse and a 69% history of sexual abuse (Saylors & Daliparthy, 2006). In addition, these Native women reported being in abusive relationships with significant others, very similar to their abusive childhood and adolescent experiences (Saylors & Daliparthy, 2006). Additionally, the introduction of alcohol puts them and their children at higher risk for sexual abuse (Saylors & Daliparthy, 2006).

Given all this information, further research into various ethnicities, would likely yield a lot of important results. Likely, it would be beneficial to further examine sexual assault and PTSD in Caucasian, Black/African American, Hispanic/Latina, and different types of Native populations, to name just a few. Understanding the differences and similarities among different ethnic groups, not only likely provides useful information, but it can likely assist in getting specific services to where they are needed.

**Socioeconomic Status and Education Level**

While ethnicity plays a role in a woman's propensity towards stress, trauma, and abuse, socioeconomic status (SES) is more of a contributing factor (Vogel & Marshall, 2001). Regarding intimate or significant other abuse, the incidence and risk is much higher for women of lower income. The frequent outcome for this population is PTSD (Vogel & Marshall, 2001).

Further, sexual abuse survivors who had lower education and lower income, are more likely to have comorbid substance abuse with PTSD, than PTSD alone (Vogel & Marshall, 2001). The higher the SES, the more sympathy and non-blaming is afforded to survivors and victims (Ullman, 2010). Thus, this would likely leave women with lower SES in more difficult situations, in terms of finances, social supports (Ullman, 2010), and available services, than those with higher SES.

Domestic violence disproportionately affects children who are from low-income families and areas (Skybo, 2005). In addition, it has been suggested that Black/African American and Hispanic children were more liable to be witnesses to both physical and sexual violence than Caucasian children (Skybo, 2005). As previously stated, Native women have a high incidence of all types of abuse, including sexual abuse, rape, and physical abuse (Farley et al., 2016). Additionally, they are at a high risk for homelessness, health and mental health disorders, and poverty (Farley et al., 2016).

Loss of objects, such as resources, including money, time, and information, likely adds negatively to the situation (Gavranidou & Rosner, 2003). While this likely can be devastating for anyone, women typically have less resources then men, so these losses

can be more devastating for women, resulting in higher levels of symptomology (Gavranidou & Rosner, 2003). Because of this, and the purported relationship between low SES and PTSD, PTSD risk for this population increases greatly. Lower SES appears to be associated with higher incidence of PTSD and substance abuse after a sexual assault (Ullman et al., 2006).

There has been a connection suggested between higher cognitive functioning and the ability to prevent PTSD (McNally et al., 2003). The ways children, who are exposed to domestic violence assess said violence, affects their cognitive development, their abilities to understand right and wrong, and in understanding cause and effect in situations (Skybo, 2005). Witnessing violence also contributes to anxiety, depression, melancholy, apprehension, solitude and isolation, aggressive behaviors, problems with sleep, a withdrawal from situations, hyperactive behaviors, and antisocial behaviors (Skybo, 2005).

**Sexual Orientation**

When considering different groups to examine, sexual orientation likely should also be considered. Lesbian and bisexual women are sexually assaulted more often than heterosexual women (Sigurvinsdottir & Ullman, 2016). One purported breakdown of sexual assault rates is reported as follows: 79.6% for bisexual women, 59.1% for lesbian women, and 43.2% for heterosexual women (Sigurvinsdottir & Ullman, 2016). Lesbian and bisexual women are at an increased risk throughout their lives, even as children (Sigurvinsdottir & Ullman, 2016).

However, among heterosexual, lesbian, and bisexual women, their assault experiences are different (Long et al., 2007). Even though lesbian and bisexual women experience sexual assault more often than heterosexual women, in all cases and across orientations, men are most often the perpetrators (Long et al., 2007). Furthermore, lesbian women have higher rates of sexual assault by people they are related to, than do heterosexual or bisexual women (Long et al., 2007).

Regarding, sexual assault and sexual orientation, women who are heterosexual, tend to undergo higher rates of completed sexual assaults, than women who are lesbians or bisexual (Long et al., 2007). Lesbian and bisexual women most often undergo sexual assault of the non-penetration type and intimidation related to intercourse (Long et al., 2007). Also, bisexual women most often experience higher incidence of sexual assault of the intimidating and non-penetration type, and completed sexual assaults, than women who are lesbians (Long et al., 2007).

Women who are heterosexual or are lesbians are equally susceptible to penetration type completed and attempted sexual assaults by males with whom they are intimate (Long et al., 2007). Additionally, women who are lesbians are more susceptible to completed rapes by female perpetrators, than heterosexual women and bisexual women (Long et al., 2007). Heterosexual women are more susceptible to non-penetration intimidation type sexual assault and coerced intercourse by males, at a rate of 98% and 90%, respectively (Long et al., 2007).

Women, who are bisexual, tend to report their sexual assaults to professional medical and mental health service professionals, and to significant others more often than

heterosexual or lesbian women (Long et al., 2007). However, they were also more likely to receive more negative feedback from others and less support from perceived social supports than heterosexual and lesbian women, and to have higher levels of PTSD as a result of their sexual assaults (Long et al., 2007). Additionally, while bisexual women disclosed to more professional medical and mental health service professionals than heterosexual and lesbian women did, they were more likely to receive negative feedback and less help from these professionals (Long et al., 2007).

Women who are lesbian or bisexual in orientation had a high level of comorbidity with PTSD and substance abuse (Ullman et al., 2006). Bisexual women have higher incidence of depression and PTSD than lesbian and heterosexual women (Ullman et al., 2006; Vogel & Marshall, 2001). The findings suggest a potential vulnerability in this population. To help illustrate this point, levels of depression and PTSD in lesbian and bisexual women who have not been sexually assaulted, appear to be comparable to women who are heterosexual and have not been sexually assaulted (Long et al., 2007).

## Limitations and Research Gaps

While there are apparently numerous studies focusing on PTSD, most of these studies focus on veterans' populations (APA, 2021). Additionally, these studies on military and veteran populations apparently focus more on combat situations rather than sexual assault in the military (Anxiety.org, 2017). Thus, there is a need for change, and more research should focus on populations, military and otherwise, who experience sexual assault.

The study emphasized the importance of looking beyond veterans' populations when considering PTSD, both men and women, but especially women when it comes to sexual assault and PTSD. Over their lifetime, it has been suggested that women are two times as likely to develop PTSD than men (Smith et al., 2016). This is indicated, even though men may be more likely to encounter traumatic events and stressors, than women (Galovski et al., 2013). A contributing factor to this may be that women are considered more likely to experience interpersonal violence than men, and as discussed earlier, interpersonal violence is associated with higher rates of PTSD (Galovski et al., 2013).

As previously discussed, in a special 2016 report by the Bureau of Justice Statistics, which examined female sexual violence from 1994-2010, in 2010 270,000 sexual assaults were committed, attempted, or threatened on females in the United States, which averages about 2.1 per 1,000 females (Planty et al., 2016). The age range for this report was 12 years of age or older (Planty et al., 2016). Women are more likely to exhibit depression and anxiety symptoms and are twice as likely to develop PTSD after a sexual assault than men (Parker-Guilbert et al., 2014).

Another research gap involves intimate partner violence. Domestic violence, including physical and sexual assaults, economic and psychological abuse, and abusive control (Salcioglu et al., 2016) has been around since the beginning of time. Purportedly, it crosses all cultures and relationship types, (Waldman-Levi et al., 2015) all ages, socioeconomic statuses, genders, sexual orientations, religions, and nationalities (NCADV, 2015).

Examining all the violence in the world, domestic violence accounts for 15% of the total (NCADV, 2015). The annual rates in most countries have increased over the last several decades (Hsieh et al., 2009). In the United States, every nine seconds a woman is sexually or physically assaulted (NCADV, 2015). All over the world, including the United States, women are most often the victims, with their male intimate partners making up most of the perpetrators (Hsieh et al., 2009).

While this study focuses on women in general, future studies could likely benefit from examining different cultures and races. Domestic violence disproportionately affects children who are from low-income families and areas (Skybo, 2005). In addition, it has been suggested that Black/African American and Hispanic children were more liable to be witnesses to both physical and sexual violence than Caucasian children (Skybo, 2005). As previously stated, Native women have a high incidence of all types of abuse, including sexual abuse, rape, and physical abuse (Farley et al., 2016).

Lastly, another research gap involves substance abuse. The study focused on comorbidity of alcohol abuse/dependence. Alcohol abuse/dependence was chosen to differentiate from other substances, because of the wide-spread availability and legality of purchasing alcohol, as opposed to illicit substances and abused prescription medications. Further studies should likely focus on other substances.

As stated, it has been suggested that sexual assault is connected to several psychological issues. Some of these issues include PTSD, re-experiencing the events and flashbacks, self-injurious behaviors, dissociation, eating disorders, suicidal ideation, sleep disorders, (RAINN, 2016), and comorbidity, including substance abuse, depression, and

anxiety disorders (Smith et al., 2016). Sexual assault has also been connected to physical

issues and consequences, and fears over physical consequences, such as sexually

transmitted diseases or pregnancy (RAINN, 2016).

Violence against women that results in trauma has a high comorbidity with

substance abuse (Ullman, 2016). Women experiencing trauma are more likely to engage

in risky behaviors, including substance abuse and unsafe sexual behaviors (Ullman,

2016). They are at a higher risk for contracting HIV/AIDS, especially in cases where

substance abuse is combined with trauma (George et al., 2014).

A more serious and brutal level of childhood sexual abuse, combined with

supplementary traumatic occurrences in life, have been connected more often to PTSD

and poly-substance use and abuse than PTSD alone (Ullman et al., 2006). Those sexual

assault survivors, who have a history of prior trauma, are more likely to acquire comorbid

poly-substance abuse and PTSD rather than PTSD alone (Ullman et al., 2006). Those

with comorbid poly-substance abuse and PTSD exhibited higher levels of depressive

symptoms and pronounced PTSD symptoms than those with PTSD symptoms alone

(Ullman et al., 2006).

Also, survivors who abused drugs and or alcohol before being assaulted, were

more likely to be comorbid with various disorders than those who did not (Ullman et al.,

2006). Increasing research in this area can likely also help with proper and timely

assessment, better understanding, and proper treatment. For example, women

experiencing trauma who self-medicate with alcohol are more likely to engage in risky

behaviors (Ullman, 2016). Because they are using alcohol to cope with the intrusive thoughts and other symptoms, they also reduce their inhibitions (Ullman, 2016).

They may then be easily coerced into sexual acts or other acts to which they may not consent when sober, including possibly being sexually assaulted again (Ullman, 2016). Their vulnerability may open them up to waiting perpetrators, traumatizing them all over again (Ullman, 2016). This helps illustrate the need for delving into these research gaps and this study helps guide future research to assist these populations before they are re-victimized.

### Summary and Transition

In chapter 2, I reviewed the literature as it relates to the three research questions. The questions examined whether there is a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted. Two other factors were also examined; alcohol dependence/addiction, sexual assault, and PTSD, and intimate partner violence, sexual assault, and PTSD.

Then I introduced the history and evolution of the awareness and proper classification of PTSD. Before World War I (WWI), military medical personnel did not acknowledge PTSD as a viable result of being in combat and being exposed to traumatic situations (Uomoto & Williams, 2009). The first recognized diagnoses of PTSD were made in Vietnam veterans' populations (Hapke et al., 2006).

Then I discussed the study population, female civilian populations, as related to the research questions. Women are twice as likely to develop PTSD from a sexual assault than men (Smith et al., 2016). Alcohol abuse is related to more severe PTSD symptoms

(Blancoa et al., 2013), and intimate partner abuse has negative physical and psychological effects, such as PTSD (Hsieh et al., 2009).

In chapter 3 I provide a discussion of the research design and approach, and the methodology. As this was a meta-analysis, research articles and their effect sizes were examined for their suitability in this study, and a random effects model and the effect size Cohen's *d* were used. The setting was the Walden University library and its databases. I conclude the chapter with a presentation of the statistical methods.

In chapter 4 I discuss the results of the statistical procedures conducted, the research design and approach, the settings and databases for gathering articles, and the statistical methods, and ending with population effects, which are the crux of a meta-analysis. In chapter 5 I discuss the interpretations of the findings, validity and reliability, future research, and the limitations of the study. I will end the chapter with a discussion of positive social change.

Chapter 3: Research Method

**Introduction**

The purpose of this study was to examine the connection between sexual assault in women and PTSD, and as it applied to alcohol dependence/addiction and intimate partner violence, by conducting a meta-analysis of quantitative studies that have covered these topics. Among nonveteran civilian populations, sexual assault has been shown to be one of the strongest causes of PTSD (Yusko & Gay, 2017). Sexual assault trauma is one most often related to PTSD (Sidran Institute, 2013). Alcohol dependence/addiction and the intimate partner violence appear to be factors in the potential development of or increase in severity of PTSD (Lehavot et al., 2014; Ullman et al., 2014).

**Research Design and Approach**

For this study, I evaluated prior research on the topic (see Lipsey & Wilson, 1993), probing the relationship between rape and the subsequent development of PTSD in women, also as related to alcohol dependence/abuse and intimate partner violence, by investigating various factors and examining their relationship.

In conducting the meta-analysis, I addressed the following questions:

RQ1: Is there a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted?

$H_0 1$: The development of PTSD is not related to the occurrence of a sexual assault in women.

$H_1 1$: The development of PTSD is related to the occurrence of a sexual assault in women.

RQ2: Is there a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women?

$H_0$2: Presence of alcohol dependence/addiction and sexual assault are not related to the development of PTSD.

$H_1$2: Presence of alcohol dependence/addiction and sexual assault are related to the development of PTSD.

RQ3: Is there a relationship between intimate partner violence and the development of posttraumatic stress disorder in women who have been sexually assaulted?

$H_0$3: Intimate partner violence is not related to PTSD in cases of sexual assault in women.

$H_1$3: Intimate partner violence is related to PTSD in cases of sexual assault in women.

## Methodology

As they pertain to the research questions, research articles and their effect sizes were examined for their suitability, in a meta-analysis. A random effects model and the effect size Cohen's *d* were calculated and examined for each article, for each research question. Then, all the articles for each research question were synthesized into one value (see Hohn, 2020), which is the crux of conducting a meta-analysis. Table 1 shows a summary of the inclusion criteria.

The population that was examined in this study was females who have survived sexual assault. The study focused only on women and not men or children. Because the study was a meta-analysis, the data were based upon previous research, rather than a new experimental design.

The independent variables for this study were as follows: I1: (*N*) Number of Participants, I2: Assessment Method (effect size formula), I3: Participant Gender, I4: Participant Age Group, and I5: Year of Publication (DeCoster, 2009).

The dependent variables for this study were as follows: D1: Relationship between the occurrence of a sexual assault and the development of posttraumatic stress disorder in women who have been sexually assaulted, D2: Relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women, D3: Relationship between an intimate partner violence and the development of posttraumatic stress disorder in women who have been sexually assaulted.

The setting for gathering the articles for this meta-analysis was my computer and the Walden University library. There were many exhaustive and smaller searches of articles conducted over months, and over extensive numbers of hours (Bramer et al., 2018). The articles that were retrieved applied to the three research questions to answer said questions.

## Meta-Analytic and Statistical Procedures

In a meta-analysis, the evaluation of previous research is conducted with the research articles themselves being examined instead of live human or animal participants (Lipsey & Wilson, 2001). I examined whether there was a relationship between the

occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted, whether there is a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women, and whether there a relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted. This was done using a quantitative meta-analytical approach.

In this study, I evaluated research articles as they pertained to the research questions. In examining articles for suitability, the effect sizes were evaluated. A random effects model, which states that each study has its own discrete effect size (Lipsey & Wilson, 2001), was used, and the effect size Cohen's *d*, which is used for studies with different population sizes (Ellis, 2010), was conducted.

## Data Collection and Analysis

For this study, the research data was collected through thorough article searches using various search terms. The components for this study are outlined in this section. Thorough searches were conducted through the Walden University library, utilizing various databases, over several months.

Every term remotely applicable to the research questions were used in these searches. In order to be as thorough as possible (Bramer et al., 2018), in keeping with conducting a proper meta-analysis, the searches continued until only repeated articles were coming up in the searches. These terms and the databases used are included in the results section.

**Effect Size Measurement**

The effect sizes from information gathered from these articles were calculated to evaluate the strength of each research question. Some of the effect sizes often used in meta-analyses are Pearson *r* correlation coefficient (Lipsey & Wilson, 2001), Hedge's *g*, Glass's delta, and Cohen's *d* (Ellis, 2010). Hedge's *g*, Glass's delta, and Cohen's *d* are all in what is termed *the d family* (Ellis, 2010).

The effect sizes in *the d family* are all used in meta-analysis, yielding the same or similar results, with the main difference being the formulas themselves (Ellis, 2010). After examining the various effect size formulas, Cohen's *d* was chosen. In interpreting the effect size for Cohen's *d*, Cohen proposed the following parameters: Small Effect ≥ 0.20, Medium Effect ≥ 0.50, Large Effect ≥ 0.80 (Ellis, 2020). The statistical formula for Cohen's *d* is:

$$\text{Cohen's } d = \frac{M_1 - M_2}{SD_{pooled}}$$

The *M* represents the means of the groups being compared, while the *SD* is the pooled standard deviation (Hong Kong Polytechnic University, 2009).

A random effects model was selected as opposed to a fixed effects model, as it was most applicable to this study. The random effects model was selected because it purports that each individual study has its own discrete effect size (Lipsey & Wilson, 2001). Alternatively, the fixed effects model purports that all the included studies have the same effect size and any differences are because of unseen accidental causes (Lipsey & Wilson, 2001).

## Statistical Analysis Methodology

The information was parsed out of each article, for each research question. To calculate the Cohen's *d* effect size, the "Practical Meta-Analysis Effect Size Calculator," designed by David B. Wilson, Ph.D., a Professor in the Criminology, Law and Society Department at George Mason University, was used. Wilson is considered an expert in the field of criminology, but also meta-analysis and quantitative research methods, and has won awards for contributing to systematic reviewing (George Mason University, 2020). He has published countless articles and books in this arena, including the book "Practical Meta-Analysis," used in this dissertation.

In cases where there were effect sizes other than Cohen's *d*, or other ones in *the d family* already calculated in the articles, calculators to convert them to Cohen's *d* were investigated. After researching and investigating several calculators, the "Effect Size Converter" was chosen. It was designed by statistical expert Hause Lin, from the University of Toronto (Lin, 2020).

**Table 1**

*Summary of Proposed Inclusion Criteria*

| Inclusion Criteria | Requirements |
|---|---|
| Study Foundation | Scholarly, peer-reviewed, published journal articles.<br><br>Articles collected from the following databases: databases of EBSCO. These databases include: PsycINFO, PsycARTICLES, CINAHL Plus, ERIC, MEDLINE, Social Sciences Citation Index, ScienceDirect, SocINDEX, PsycEXTRA, Science Citation Index, PsychiatryOnline, Education Source, Expanded Academic ASAP, and ScienceDirect. |
| Participants | Women who have been sexually assaulted. Exclusions: Men and children |
| Type of Study | • Quantitative meta-analysis.<br>• Calculating and interpreting effect size<br>• Using Cohen's *d* to calculate effect size<br>• Proposed sampling of around 5-10 articles per research question |

## Summary and Transition

Chapter 3 provided a discussion of the research design and approach. Because the study was a meta-analysis, the data was based upon previous research, rather than a new experimental design (Lipsey & Wilson, 1993), on the relationship between rape and PTSD in women, as related to factors such as: comorbidity of alcohol dependence/abuse and intimate partner violence.

Chapter 3 also discussed the methodology of the study. As this was a meta-analysis, research articles and their effect sizes were examined for their suitability in this study, and a random effects model and the effect size Cohen's *d* were used. The setting was the Walden University library and its databases.

The population in this study was female sexual assault survivors. The study focused only on women and not men or children. The chapter concluded with a presentation of the statistical methods. This included stating the names of the effect size calculators that were used and some reference information about them.

In chapter 4 I discuss the results of the statistical procedures conducted, the research design and approach, the settings and databases for gathering articles, including the research terms used in the numerous searches. The chapter continues with a presentation of the statistical methods, including a confirmation of the chosen effect size and the effect size calculators that were used. The chapter included a presentation of the results of the effect size calculations of Cohen's *d* for each research question and forest plots for each one as well, concluding with population effects, which are the crux of a meta-analysis.

In chapter 5 I discuss the interpretations of the findings. I also discuss validity and reliability, future research, and the limitations of the study. I will end the chapter with a discussion of positive social change.

Chapter 4: Results

**Introduction**

The purpose of this research was to quantitatively examine the relationship between sexual assault and PTSD in women, by conducting a meta-analysis. The research questions examined were as follows:

RQ1: Is there a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted?

$H_0$1: The development of PTSD is not related to the occurrence of a sexual assault in women.

$H_1$1: The development of PTSD is related to the occurrence of a sexual assault in women.

RQ2: Is there a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women?

$H_0$2: Presence of alcohol dependence/addiction and sexual assault are not related to the development of PTSD.

$H_1$2: Presence of alcohol dependence/addiction and sexual assault are related to the development of PTSD.

RQ3: Is there a relationship between intimate partner violence and the development of posttraumatic stress disorder in women who have been sexually assaulted?

$H_0 3$: Intimate partner violence is not related to PTSD in cases of sexual assault in women.

$H_1 3$: Intimate partner violence is related to PTSD in cases of sexual assault in women.

This chapter encapsulates the results of these investigations. The results are discussed below. They are also presented in table and plot formats.

Both the effect sizes and study descriptors are coded and presented in a table. The descriptors served as the independent variables (Lipsey & Wilson, 2001). The study descriptors, or independent variables, were coded as follows: I1: (*N*) Number of Participants, I2: Assessment Method (Effect Size formula), I3: Participant Gender, I4: Participant Age Group, and I5: Year of Publication (DeCoster, 2009).

The effect sizes were the dependent variables (Lipsey & Wilson, 2001). The effect sizes (dependent variables) were coded in keeping with the research questions. The coding was as follows: D1: Relationship between the occurrence of a sexual assault and the development of posttraumatic stress disorder in women who have been sexually assaulted, D2: Relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women, D3: Relationship between an intimate partner violence and the development of posttraumatic stress disorder in women who have been sexually assaulted.

**Data Collection**

**Article Selection Method**

In a meta-analysis, previously published articles pertaining to the research questions are examined instead of live participants. Starting in July 2019, after the institutional review board approval was obtained, and over several months databases were explored for articles pertaining to the three research questions. Created to help manage all the articles from the multiple searches, a matrix was developed to organize the articles and help parse out the best articles to be used in this study. The matrix includes boxes to check each article for its potential relevance in this study.

Various branches of the Walden University library database were used. Both single database and multiple-database searches were conducted. In the multi-database searches, terms were typed into the search bar at the top of the library page. While many of the EBSCO branches that apply to psychology articles were used including Academic Search Premier, PsycARTICLES, PsycINFO, CINAHL plus, PubMed, and ERIC, the multidatabase searches covered all the available databases.

**Search Terms**

In searching for applicable articles, the key terms and phrases used for these searches were as follows: *sexual assault and PTSD, sexual assault and posttraumatic stress disorder, sexual assault alcohol abuse and PTSD, sexual trauma in women, sexual assault in women, PTSD in women, alcohol addiction and PTSD, alcohol abuse and PTSD, sexual assault and PTSD and comorbid alcohol dependence, alcohol addiction and PTSD, PTSD women and sexual assault, alcohol abuse in women, alcohol abuse and*

*PTSD, sexual assault and trauma, rape, domestic violence PTSD and sexual assault, sexual assault PTSD and intimate partner abuse, PTSD sexual assault and intimate partner abuse, sexual assault PTSD and partner abuse, PTSD sexual assault and partner abuse, sexual assault PTSD intimate partner violence, PTSD sexual assault and intimate partner violence, PTSD sexual assault and intimate partner physical abuse, and sexual assault PTSD and intimate partner physical abuse.*

## Study Results

### Raw Data

Table 2 displays the raw data for each article, for all three research questions. The first column is for identification and has the lead author name and year. The second shows the independent variables. The third column shows the raw data for each article.

**Table 2**

*Raw Data*

| Primary Article Author Research Question # | Independent Variables | Raw Data |
|---|---|---|
| Carper<br><br>Research Question #1 | I1: Overall $N = 240$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2015 | Group 1: $n = 120$ $n$ $df = 119$<br>Group 2: $n = 120$ $n$ $df = 119$<br>T = 7.54<br>$N$ $df = 239$<br>$p < .001$ |
| Dworkin<br><br>Research Question #1 | I1: Overall $N = 294$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2015 | Group 1: *M(SD)*<br>16.16 (9.26)<br>$n = 147$ $n$ $df = 146$<br>Group 2: *M(SD)*<br>13.83(8.37)<br>$n = 147$ $n$ $df = 146$<br>$N$ $df = 293$<br>$p < 0.01$ |
| Hansen<br><br>Research Question #1 | I1: Overall $N = 244$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2017 | Group 1: *M(SD)* 35.58<br>(10.16)<br>$n = 122$ $n$ $df = 121$<br>Group 2: *M(SD)*<br>38.53(9.94)<br>$n = 122$ $n$ $df = 121$<br>$N$ $df = 243$<br>$p < .01$ |
| Kubany<br><br>Research Question #1 | I1: Overall $N = 80$<br>I2: Effect Size: Cohen's $d$<br>0.2449<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2004 | Group 1: *M(SD)* 77.5(21.9)<br>$n = 40$ $n$ $df = 39$<br>Group 2: *M(SD)* 71.9(23.8)<br>$n = 40$ $n$ $df = 39$<br>$N$ $df = 79$<br>$p < .001$ |
| Moller<br><br>Research Question #1 | I1: Overall $N = 177$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2014 | Group 1: *M(SD)*<br>104.7(22.1)<br>$n = 74$ $n$ $df = 73$<br>Group 2: *M(SD)* 89.6(25.2)<br>$n = 105$ $n$ $df = 104$<br>$N$ $df = 176$<br>$p < .001$ |
| Sharma-Patel<br><br>Research Question #1 | I1: Overall $N = 38$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult | Group 1: *M(SD)* 9.79(7.64)<br>$n = 19$ $n$ $df = 18$<br>Group 2: *M(SD)*<br>10.32(7.58) |

| | I5: Year: 2012 | $n = 19$ $n$ $df = 18$ $N$ $df = 37$ $p < .05$ |
|---|---|---|
| Tarzia<br><br>Research Question #1 | I1: Overall $N = 223$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2015 | Group 1: $M(SD)$ 36.8 (14.4)<br>$n = 48$ $n$ $df = 47$<br>Group 2: $M(SD)$ 23.7 (9.4)<br>$n = 175$ $n$ $df = 174$<br>$N$ $df = 222$<br>$p < 0.001$ |
| Bedard-Gilligan<br><br>Research Question #2 | I1: Overall $N = 247$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2014 | Group 1: $M(SD)$ 9.97(4.98)<br>$n=105$ $n$ $df=104$<br>Group2: $M(SD)$ 12.83(9.28)<br>$n=142$ $n$ $df=141$<br>$N$ $df=246$<br>$p < .01$ |
| Griffin<br><br>Research Question #2 | I1: Overall $N = 159$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2012 | Group 1: $M(SD)$ 37.6(12.6)<br>$n=108$ $n$ $df=107$<br>Group2: $M(SD)$ 45.3(13.6)<br>$n=51$ $n$ $df=50$<br>$N$ $df=158$<br>$p < .01$ |
| Lipsky<br><br>Research Question #2 | I1: Overall $N = 915$<br>I2: Effect Size: Cohen's $d$<br>0.965<br>CI - 4.67/7.10<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2016 | Odds Ratio = 5.76<br>Group 1: $n = 767$ $n$ $df = 766$<br>Group 2: $n = 148$ $n$ $df = 147$<br>$N$ $df=914$<br>$p < .0001$ |
| McConnell<br><br>Research Question #2 | I1: Overall $N = 77$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2017 | Group 1: $M(SD)$<br>37.30(14.92)<br>$n = 48$ $n$ $df = 47$<br>Group 2: $M(SD)$<br>47.62(15.64)<br>$n = 29$ $n$ $df = 28$<br>$N$ $df = 76$<br>$p < .01$ |
| Moller<br><br>Research Question #2 | I1: Overall $N = 177$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2014 | Odds Ratio = 0.77<br>Group 1: $n = 74$ $n$ $df = 73$<br>Group 2: $n = 105$ $n$ $df = 104$<br>$N$ $df = 176$<br>$p < .001$ |
| Ullman | I1: Overall $N = 505$<br>I2: Effect Size: Cohen's $d$ | CHI- SQUARE from a 2x2:<br>94.70 |

| Research Question #2 | I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2006 | Sample Sizes:<br>Group 1: $n = 226$ $n$ $df = 225$<br>Group 2: $n = 279$ $n$ $df = 278$<br>$N$ $df = 504$<br>$p < .001$ |
|---|---|---|
| Brown<br><br>Research Question #3 | I1: Overall $N = 162$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2015 | CHI-SQUARE from a 2x2:<br>5.95<br>Sample Sizes:<br>Group 1: $n = 103$ $n$ $df = 102$<br>Group 2: $n = 59$ $n$ $df = 58$<br>$N$ $df = 161$<br>$p < .05$ |
| Cordero<br><br>Research Question #3 | I1: Overall $N = 45$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2017 | CHI- SQUARE from a 2x2:<br>2.44<br>Sample Sizes:<br>Group 1: $n = 27$ $n$ $df = 26$<br>Group 2: $n = 18$ $n$ $df = 17$<br>$N$ $df = 44$<br>$p < 0.2$ |
| Kastello<br><br>Research Question #3 | I1: Overall $N = 230$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2016 | P-VALUE OF CHI-<br>SQUARE from a 2x2:<br>0.958<br>Sample Sizes:<br>Group 1: $n = 96$ $n$ $df = 95$<br>Group 2: $n = 134$ $n$ $df = 133$<br>$N$ $df=229$<br>$p = 0.958$ |
| Norwood<br><br>Research Question #3 | I1: Overall $N = 173$<br>I2: Effect Size: Cohen's $d$<br>I3: Gender: Women<br>I4: Age: Adult<br>I5: Year: 2012 | t = - 0.2<br>Group 1: $n = 39$ $n$ $df = 38$<br>Group 2: $n = 134$ $n$ $df = 133$<br>$N$ $df = 172$<br>$p =.845$ |

**Study Participants and Resources**

Each hypothesis was represented by around five to 10 articles. After analyzing

each article for its suitability in the study, originally the total number of subjects (the

articles) for all three research questions was 13, 10, and 10, for each question,

respectively. For suitability in completing the key components of the meta-analysis, this

number was then reduced to eight, seven, and eight respectively and then finally to seven, six, and four for the highest level of accuracy possible.

The effect size calculation, which is a quantitative measure of magnitude as it pertains to the population (Ellis, 2010), was the assessment measure being calculated and used for each article. After lengthy research, Cohen's *d* was the chosen formula. The calculators discussed in Chapter 3, the "Practical Meta-Analysis Effect Size Calculator" and the "Effect Size Converter," were the chosen tools to calculate or convert effect sizes.

**Statistical Analyses**

*Forest Plots*

The results of the effect sizes conducted and other statistical information for each article, and for each research question, are displayed in tables. Additionally, as is commonplace in a meta-analysis, forest plots were created for each research question (see Students for best evidence [Cochrane UK], 2020b). Meta-analyses are not typically complete without them (Lewis & Clarke, 2001).

A forest plot, which originated in the 1970s (Lewis & Clarke, 2001), is so named as it displays a line forest. A forest plot displays results from a group of studies that all focus on the same question (Ushmita, 2019). It also allows for a visual representation of variations among the various studies and results (Li, 2020). Forest plots vary based on the information that is being examined for each study (Students for best evidence [Cochrane UK], 2020b). In this study, the forest plots were plotted with the odds ratios to analyze statistical significance.

When looking at the plot it is important to look at the Number 1 line, on the horizontal axis. This line is called the *Line of Null Effect* (Students for best evidence [Cochrane UK], 2020b). This line provides an illustration of statistical significance.

Forest plots aid the written results with a graphic representation (Students for best evidence [Cochrane UK], 2020b). Besides giving an illustration of statistical significance, they also reveal the heterogeneity of the studies for each research question. Heterogeneity is the term that simply states that there is variability in the data. In gathering different studies for conducting a meta-analysis, it is most likely that differences would occur (Students for best evidence [Cochrane UK], 2020a).

Studies that have all the same effect would be classified as having homogeneity (Students for best evidence [Cochrane UK], 2020a). However, this is not a likely occurrence in a meta-analysis. In the thorough searches for a meta-analysis, many articles are gathered from various sources. A writer would likely have to do nonrandom searches and pick articles for that purpose. None of this would be ideal for a proper meta-analysis. Additionally, that was not done for this random sampled and random effects model study.

Most often, the results of studies being examined are displayed as squares. Each square represents the estimated point of the result of the study (Lewis & Clarke, 2001). The horizontal lines that cross the squares or circles in a forest plot, and referred to as error bars, help with interpretation. If the error bar crosses the *Line of Null Effect* because the null value is contained within it, this illustrates that the study is likely statistically insignificant (Students for best evidence [Cochrane UK], 2020b).

There are different types of error bars and they typically fall into two main categories, descriptive and inferential (Cumming et al., 2007). The descriptive error bars typically describe the data in a study. For descriptive error bars, range and standard deviation are the options (Cumming et al., 2007).

The inferential error bars provide information about inferences or conclusions of the data in a study. For inferential error bars, standard error and confidence intervals are the options. Contained in the inferential error bars are the means for the entire population (Cumming et al., 2007). For this study, inferential standard error bars are appropriate, as they assist in comparing samples from two groups, which was the focus of my study.

### Odds Ratios and Confidence Intervals

Odds ratios (*OR*) indicate the odds of a result taking place. In examining the interested outcome (what I am interested in researching), they are employed to compare the relative odds of said outcome, given an introduction of a variable (Szumilas, 2010). For example, in the present study, the outcome was PTSD, while some examples of variables were alcohol abuse, sexual assault, or intimate partner violence (IPV). *ORs* can be used whether specific contact contributes to a certain outcome (Szumilas, 2010). Again, looking at the present study, one example of this was the question *does exposure to IPV in cases of sexual assault contribute to the development of PTSD?*

The 95% confidence interval (CI) represents 95% certainty within the range, the genuine value is located (Students for best evidence [Cochrane UK], 2020b). The 95% CI approximates how accurate the odds ratios are (Szumilas, 2010). In examining CIs, larger CIs tend to be indicative of a lower level of accuracy of the *OR*. Alternatively, smaller

CIs tend to be indicative of a higher level of accuracy of the *OR*. However, it is critical to mention to avoid any misunderstanding, that the CI is not a measurement of statistical significance (Szumilas, 2010).

**Results: Hypothesis 1**

The first hypothesis predicted that there is a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted.

To test this hypothesis effect sizes were evaluated. A random effects model, which states that each study has its own discrete effect size (Lipsey & Wilson, 2001), was used and the effect size Cohen's *d*, which is used for studies with different population sizes (Ellis, 2010), was conducted. The analysis was performed to examine whether or not there is a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted.

The results table and forest plots are below these results. As stated in Table 3, the Cohen's *d* results for Carper and Tarzia, showed a large effect size and an above large effect size, respectively. As stated in Table 3, the *p* values for these two studies were *p* < .001 and *p* < 0.001, respectively. They both appeared to be statistically significant and appeared to reject the null hypothesis.

The results as shown in the forest plots for the first research question, illustrated several important findings. As stated above, the *Line of Null Effect,* illustrates statistical significance (Students for best evidence [Cochrane UK], 2020b). In Figure 1, the results of the studies are displayed. Carper and Tarzia appeared to contribute to the finding of

statistically significant results, being far right to the *Line of Null Effect*. Additionally, the error bars were not crossing the *Line of Null Effect*, which helped strengthen the case for statistical significance.

As stated in Table 3, the *p* values for Dworkin and Moller were $p < 0.01$ and $p < .001$, respectively. So, they appeared to be statistically significant and appeared to reject the null hypothesis. As stated in Table 3, the Cohen's *d* result for Moller showed an above medium effect size, while Dworkin showed a small effect size. However, a small effect size in Cohen's *d*, was still an effect that potentially had a significant influence (Glen, 2020).

Also, Moller, was past the *Line of Null Effect*, and the error bars were past it too, which appeared to contribute to the finding of statistically significant results. Dworkin was past the *Line of Null Effect*, strengthening the case for statistical significance. However, the left wing of the error bar crossed the *Line of Null Effect*, so the significance may or may not have been there.

As stated in Table 3, the *p* values for Sharma-Patel was $p < .05$, so it appeared to be statistically significant and appeared to reject the null hypothesis. Sharma-Patel was past the *Line of Null Effect*, strengthening the case for statistical significance. However, the left wing of the error bar crossed the *Line of Null Effect*, so the significance may or may not have been there. This is in keeping with the Cohen's *d* calculations (as stated in Table 3), as the calculations revealed below a small effect size.

As stated in Table 3, the *p* values for Hansen and Kubany were $p < .01$ and $p < .001$, respectively. Thus, they appeared to be statistically significant and appeared to

reject the null hypothesis. Additionally, Hansen and Kubany were both to the left of the

*Line of Null Effect*, which suggested no significance. However, the right wing of the error

bar of both crossed the *Line of Null Effect,* into the significant range, so this may have

contributed to statistical significance. The Cohen's *d* score for Hansen was below a small

effect size, while Kubany showed a small effect size.

All seven of the studies showed results of statistical significance. Thus, they all

rejected the null hypothesis and accepted the alternate hypothesis. The studies showed

varying levels of effect with Cohen's *d*.

The results of the Cohen's *d* analysis for the first hypothesis were enumerated in

Table 3.

**Table 3**

*Hypothesis 1 Results*

| Primary Article Author and Year | Statistical Information CI=Confidence Interval OR=Odds Ratio | Results |
|---|---|---|
| Carper (2015) | 95% CI = 0.7058/1.241 $p < .001$ OR = 5.845 | Cohen's $d = 0.9734$ Large Effect Size |
| Dworkin (2015) | 95% CI = 0.0344/0.4936 $p < 0.01$ OR = 1.614 | Cohen's $d = 0.264$ Small Effect Size |
| Hansen (2017) | 95% CI = -0.5458/ -0.0412 $p < .01$ OR = 0.587 | Cohen's $d = -0.2935$ Below Small Effect Size |
| Kubany (2004) | 95% CI = -0.195/0.6848 $p < .001$ OR = 0.641 | Cohen's $d = 0.2449$ Small Effect Size |
| Moller (2014) | 95% CI = 0.3254/0.9345 $p < .001$ OR = 3.135 | Cohen's $d = 0.63$ Above Medium Effect Size |
| Sharma-Patel (2012) | 95% CI = -0.5664, 0.7057 | Cohen's $d = 0.0696$ |

| | $p < .05$ | |
| | $OR = 1.135$ | Below Small Effect Size |
| Tarzia (2015) | 95% CI = 0.8896, 1.5678 | Cohen's $d = 1.2287$ |
| | $p < 0.001$ | |
| | $OR = 9.287$ | Above Large Effect Size |

**Figure 1**

*Hypothesis 1 Plot*



| Research Question One | | |
| 95% Confidence Intervals | | |
| Lower CI | Upper CI | Odds Ratio |
|---|---|---|
| 0.7058 | 1.241 | 5.845 |
| 0.0344 | 0.4936 | 1.614 |
| -0.5458 | -0.0412 | 0.587 |
| -0.6848 | 0.195 | 0.641 |
| 0.3254 | 0.9345 | 3.135 |
| -0.5664 | 0.7057 | 1.135 |
| 0.8896 | 1.5678 | 9.287 |
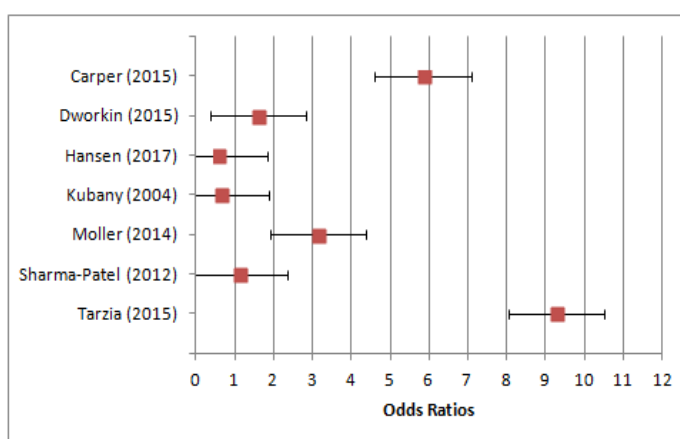
**Results: Hypothesis 2**

Hypothesis 2 predicted that there is a relationship between the presence of alcohol dependence/addiction and the development of PTSD in women who were sexually assaulted.

To test this hypothesis effect sizes were evaluated. A random effects model was used, and the effect size Cohen's *d* was conducted. The analysis was performed to examine the relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women.

As stated in Table 4, the *p* values for Lipsky, Ullman, McConnell, and Bedard-Gilligan were $p < .0001$, $p < .001$, $p < .01$, and $p < .01$, respectively. They all appeared to

be statistically significant and appeared to reject the null hypothesis. As stated in Table 4, the Cohen's *d* results showed a large, large, medium, and small effect size, respectively.

In Figure 2, Lipsky, Ullman, McConnell, and Bedard-Gilligan appeared to strengthen the statistically significant results. They were all to the right of the *Line of Null Effect*. Additionally, the error bars were not crossing the *Line of Null Effect*, which helped increase the case for statistical significance.

As stated in Table 4, the *p* values for Griffin and Moller were *p* < .01 and *p* < .001, respectively. They both appeared to be statistically significant and appeared to reject the null hypothesis. Griffin and Moller were both to the left of the *Line of Null Effect*, which possibly illustrated a weakened case for statistical significance. However, the right wing of the error bar of both crossed the *Line of Null Effect,* into the significant range, so this may have contributed to statistical significance.

As stated in Table 4, Cohen's *d* calculations revealed below small effect size in both. All six of the studies showed statistical significance. Most of the studies showed a strong effect with Cohen's *d*.

The results of the Cohen's *d* analysis for the second hypothesis were enumerated in Table 4.

**Table 4**

*Hypothesis 2 Results*

| Primary Article Author and Year | Statistical Information CI=Confidence Interval OR=Odds Ratio | Results |
|---|---|---|
| Bedard-Gilligan (2014) | 95% CI = 0.1146/0.6233 *p* < .01 OR = 1.952 | Cohen's *d* = 0.3689 Small Effect Size |
| Griffin (2012) | 95% CI = -0.935/-0.2563 *p* < .01 OR = 0.339 | Cohen's *d* = -0.5957 Below Small Effect Size |
| Lipsky (2016) | 95% CI = 4.67, 7.10 *p* < .0001 OR = 5.756 | Cohen's *d* = 0.965 Large Effect Size |
| McConnell (2017) | 95% CI = 0.206/1.1526 *p* < .01 OR = 3.428 | Cohen's *d* = 0.6793 Medium Effect Size |
| Moller (2014) | 95% CI = 0.25/2.41 *p* < .001 OR = 0.770 | Cohen's *d* = -0.144 Below Small Effect Size |
| Ullman (2006) | 95% CI = 0.7673/1.1544 *p* < .001 OR = 5.713 | Cohen's *d* = 0.9608 Large Effect Size |

**Figure 2**

*Hypothesis 2 Plot*



| Research Question Two | | |
| --- | --- | --- |
| 95% Confidence Intervals | | |
| Lower CI | Upper CI | Odds Ratio |
| 0.1146 | 0.6233 | 1.952 |
| -0.935 | -0.2563 | 0.339 |
| 4.67 | 7.1 | 5.756 |
| 0.206 | 1.1526 | 3.428 |
| 0.25 | 2.41 | 0.77 |
| 0.7673 | 1.1544 | 5.713 |
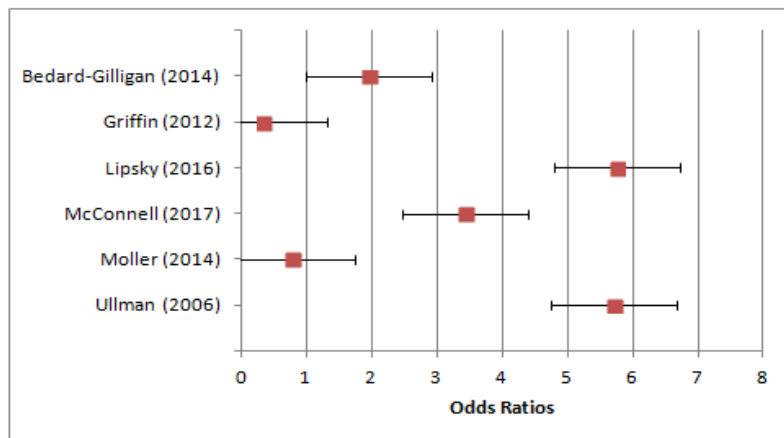
**Results: Hypothesis 3**

Hypothesis 3 predicted that there a relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted.

To test this hypothesis effect sizes were evaluated. A random effects model was used, and the effect size Cohen's *d* was conducted. The analysis was performed to examine the relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted

As stated in Table 5, the *p* values for Brown and Cordero were $p < .05$, $p > 0.2$, respectively. Brown appeared to be statistically significant and appeared to reject the null hypothesis. Cordero appeared not to be statistically significant and appeared not to reject the null hypothesis.

In the forest plot for research question 3, the results illustrated several important findings. Brown was to the right of the *Line of Null Effect*, which strengthened the case for statistical significance. Additionally, the error bars were not crossing the *Line of Null Effect*, which again helped increase the case for statistical significance. Cordero was to the right of the *Line of Null Effect*. Additionally, the error bars were not crossing the *Line of Null Effect*. However, the *p* value still showed Cordero is not statistically significant. As stated in Table 5, the Cohen's *d* results for these articles showed a close to medium effect size and a medium effect size, respectively.
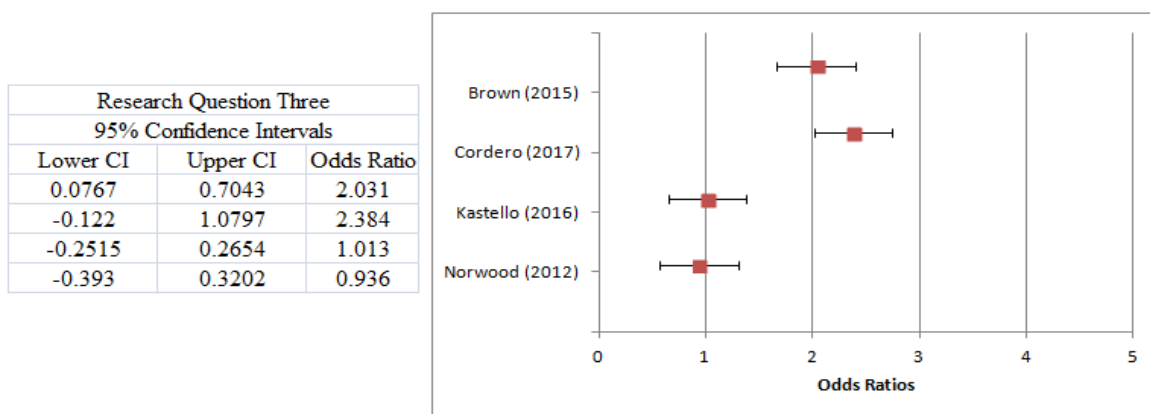
According to Table 5, the *p* values of Kastello and Norwood were $p = 0.958$ and $p < .001$, respectively. Kastello was not statistically significant and failed to reject the null hypothesis, while Norwood appeared to be statistically significant and appeared to reject the null hypothesis. They were both on the *Line of Null Effect* and the left wing of the error bar crossed the *Line of Null Effect*, which both weakened the case for statistical significance of Norwood and strengthened the already suggested case for no statistical significance of Kastello. Adding to this, Cohen's *d* calculations revealed below small effect sizes in both.

Two of the studies showed statistical significance. Two studies did not. Half of the studies showed an effect with Cohen's *d*.

The results of the Cohen's *d* analysis for the third hypothesis were enumerated in Table 5.

**Table 5**

*Hypothesis 3 Results*

| Primary Article Author and Year | Statistical Information CI=Confidence Interval OR=Odds Ratio | Results |
|---|---|---|
| Brown (2015) | 95% CI = 0.0767/0.7043 $p < .05$ OR = 2.031 | Cohen's $d$ = 0.3905 Close to Medium Effect Size |
| Cordero (2017) | 95% CI = -0.122/1.0797 $p > 0.2$ OR = 2.384 | Cohen's $d$ = 0.4789 Medium Effect Size |
| Kastello (2016) | 95% CI = -0.2515/0.2654 $p = 0.958$ OR=1.013 | Cohen's $d$ = 0.0069 Below Small Effect Size |
| Norwood (2012) | 95% CI = -0.393/0.3202 $p < .001$ OR=0.936 | Cohen's $d$ = -0.0364 Below Small Effect Size |

**Figure 3**

*Hypothesis 3 Plot*



| Research Question Three | | |
|---|---|---|
| 95% Confidence Intervals | | |
| Lower CI | Upper CI | Odds Ratio |
| 0.0767 | 0.7043 | 2.031 |
| -0.122 | 1.0797 | 2.384 |
| -0.2515 | 0.2654 | 1.013 |
| -0.393 | 0.3202 | 0.936 |

**Cohen and Sawilowsky**

In interpreting the effect size for Cohen's $d$, Cohen proposed the following

parameters: Small Effect = 0.2, Medium Effect = 0.5, Large Effect = 0.8. However, to

ensure that the parameters of studies are more accurately inclusive, Sawilowsky proposed

more expanded effect size parameters. While Cohen stressed being more rigid with the

parameters, this is not typically the school of thought today, as a more expanded

parameter set is believed to be more accurate (Sawilowsky, 2009).

However, this does not mean that Cohen's *d* is not a well-respected and a widely

used calculation for effect size. It is both widely used and well respected, as are all the *d*

family effect size formulas. Sawilowsky did not negate Cohen's parameters. Quite the

contrary, Sawilowsky simply expanded on Cohen's parameters, but left Cohen's intact

(Sawilowsky, 2009).

Additionally, Sawilowsky and others are not proposing changes to Cohen's

formula either. Sawilowsky proposed the following parameters: Small Effect = 0.2,

Medium Effect = 0.5, Large Effect = 0.8, in keeping with Cohen's, and added 0.01=Very

Small Effect, 1.20=Very Large, and 2.0=Huge (Sawilowsky, 2009). Table 6 illustrates

these expanded parameters.

**Table 6**

*Research Question 1: Cohen's Versus Sawilowsky*

| Primary Article Author and Year | Cohen's Versus Sawilowsky |
|---|---|
| Carper (2015) | Cohen's *d* = 0.9734 - Large Effect Size<br>Sawilowsky – Large Effect Size |
| Dworkin (2015) | Cohen's *d* = 0.264 - Small Effect Size<br>Sawilowsky – Small Effect Size |
| Hansen (2017) | Cohen's *d* = -0.2935 - |

| | Below Small Effect Size Sawilowsky – Below Very Small Effect Size |
|---|---|
| Kubany (2004) | Cohen's $d$ = 0.2449 – Small Effect Size Sawilowsky – Small Effect Size |
| Moller (2014) | Cohen's $d$ = 0.63 - Above Medium Effect Size Sawilowsky – Above Medium Effect Size |
| Sharma-Patel (2012) | Cohen's $d$ = 0.0696 - Below Small Effect Size Sawilowsky – Very Small Effect Size |
| Tarzia (2015) | Cohen's $d$ = 1.2287 - Above Large Effect Size Sawilowsky – Very Large Effect Size |

**Table 7**

*Research Question 2: Cohen's Versus Sawilowsky*

| Primary Article Author and Year | Cohen's Versus Sawilowsky |
|---|---|
| Bedard-Gilligan (2014) | Cohen's $d$ = 0.3689 - Small Effect Size Sawilowsky – Small Effect Size |
| Griffin (2012) | Cohen's $d$ = -0.5957 Below Small Effect Size Sawilowsky – Below Very Small Effect Size |
| Lipsky (2016) | Cohen's $d$ = 0.965 - Large Effect Size Sawilowsky – Large Effect Size |
| McConnell (2017) | Cohen's $d$ = 0.6793 - Medium Effect Size Sawilowsky – Medium |

|  | Effect Size |
|---|---|
| Moller (2014) | Cohen's $d$ = -0.144 - Below Small Effect Size Sawilowsky – Below Very Small Effect Size |
| Ullman (2006) | Cohen's $d$ = 0.9608 Large Effect Size Sawilowsky – Large Effect Size |

**Table 8**

*Research Question 3: Cohen's Versus Sawilowsky*

| Primary Article Author and Year | Cohen's Versus Sawilowsky |
|---|---|
| Brown (2015) | Cohen's $d$ = 0.3905 Close to Medium Effect Size Sawilowsky – Close to Medium Effect Size |
| Cordero (2017) | Cohen's $d$ = 0.4789 – Medium Effect Size Sawilowsky – Medium Effect Size |
| Kastello (2016) | Cohen's $d$ = 0.0069 - Below Small Effect Size Sawilowsky – Below Very Small Effect Size |
| Norwood (2012) | Cohen's $d$ = -0.0364 - Below Small Effect Size Sawilowsky – Below Very Small Effect Size |

In examining the comparisons between Cohen and Sawilowsky, it is apparent that

Sawilowsky was not trying to alter or negate anything Cohen established. Rather, it

appears that he was merely trying to enhance the parameters to make them more relevant.

Hansen, Griffin, Moller, Kastello, and Norwood changed from Below Small Effect Size to Below Very Small Effect Size, which did not change their results.

Tarzia changed from above large effect to very large effect size, which acknowledged it in a whole new category. Sharma-Patel changed from Below Small Effect Size to Very Small Effect Size, which likely changed the perspective on their results. Thus, the small effect size got acknowledged. As stated, a small effect size is still an effect and can have significant influence (Glen, 2020). Carper, Dworkin, Kubany, Moller, Bedard-Gilligan, Lipsky, McConnell, Ullman, Brown, and Cordero all remained the same with both Cohen's and Sawilowsky parameters.

**Population Effects**

While it is vital to obtain the effect sizes for each article, in a meta-analysis all the articles for a research question are synthesized into one value as well, thus, contributing to precision and stronger overall conclusions about the populations (Hohn, 2020). The weighted mean effect size was calculated for each research question to achieve this synthesis.

Because meta-analyses that employ random effect models use articles with different population sizes, many times these populations vary and some are small, while others are much larger (Lin, 2018). This calculation of the weighted mean effect size gives more weight to the articles with larger populations. This in turn helps reduce any sampling error issues that may have existed in the study (Ellis, 2020).

In this next section, the results of the synthesized data for each research question were presented. In order to achieve the final weighted mean effect size for each research

question, several calculations were conducted. In the first step, the population for each article was multiplied by the effect size for each article: $N$ x $d$, with $N$ being the total population and $d$ representing the effect size Cohen's $d$ (Ellis, 2020).

In the second step, each result in the first step, was summed up, and became the numerator (Ellis, 2020). In the third step, the populations ($N$) for each article were summed, and became the denominator (Ellis, 2020). In the fourth step, the numerator calculated in the second step, was divided by the denominator, which was calculated in the third step (Ellis, 2020). These steps calculated the weighted mean effect size for each research question, and the results were displayed in table 9.

The results showed that the weighted mean effect size for the first research question produced a medium effect. Also, the results showed that the weighted mean effect size for the second research question produced a close to large effect. The results for the third research question produced a below small effect.

Table 9 presented the weighted mean effect sizes for all three research questions.

**Table 9**

*Weighted Mean Effect Sizes*

|  | Weighted Means |
| --- | --- |
| Research Question 1: Weighted Mean Effect Size | = 0.4995 Rounded to 0.5 Medium Effect |
| Research Question 2: Weighted Mean Effect Size | = 0.6689 Rounded to 0.7 Close to Large Effect |
| Research Question 3: Weighted Mean Effect Sizes | = 0.1313 Rounded to 0.1 Below Small Effect |

**Summary and Transition**

Chapter 4 discussed the results of the statistical procedures conducted. It provided a discussion of the research design and approach. Chapter 4 also covered the settings and databases for gathering articles, including the research terms used in the numerous searches. Table 2 enumerated the raw data for all the final chosen articles.

The chapter continued with a presentation of the statistical methods, including a confirmation of the chosen effect size and the effect size calculators that were used. The chapter included a presentation of the results of the effect size calculations of Cohen's *d* for each research question and forest plots for each one as well. It concluded with a discussion of population effects, which are the crux of a meta-analysis.

In chapter 5 I discuss the interpretations of the findings. I also discuss the validity and reliability of the study. This will segue into recommendations for future research. As stated, PTSD is still connected to very specific populations and circumstances. The present study helped show that it affects more, non-military populations, in non-combat situations.

The discussion into future research will highlight broadening it into even more populations. In chapter 5 I also discuss the limitations of the study to provide a well-rounded study and to also help assist future research. My discussion of positive social change and the conclusion will end the chapter.

Chapter 5: Discussion, Conclusions, and Recommendations

**Introduction**

The purpose of this research was to examine the relationship between sexual assault and PTSD in women, as related to three factors. The first one that was examined in this study is whether there is a relationship between the occurrence of a sexual assault and the development of PTSD in women who have been sexually assaulted. The second one was whether there is a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women. The last one was whether there a relationship between the presence of intimate partner violence and the development of PTSD in women who have been sexually assaulted. The results from this study showed that all these research questions had strong cases for statistical significance.

The main reason this study was conducted was to help increase understanding that the diagnosis of PTSD goes beyond combat, military situations, and traumas. The results helped lend credence to this endeavor and provided good arguments for why PTSD in civilian abuse and trauma cases should be investigated. Other studies should investigate military personnel PTSD in noncombat situations as well. Among many other things, a more detailed discussion about future studies and implications will be discussed later in the chapter.

**Interpretations and Discussion of the Findings**

As stated, the main reason this meta-analytic study was conducted was to help increase understanding about the relationship between sexual assault and PTSD.

Additionally, this included examining alcohol dependence/addiction and intimate partner violence, and their relationship to sexual assault and PTSD. I investigated three research questions and the results yielded information for all of them. Seven articles were finally selected for the first research question, six for the second, and four for the third.

In examining the articles for the first research question, all the articles had statistical significance. Two articles had large or above large effect sizes, while one had an above medium effect size. Also, two had small effect sizes and two articles had below small effect sizes.

While one may look at this and state that there was not much in the way of effect, this is where the strengths of a meta-analysis were used. The weighted mean effect size produced a medium effect. Since a small effect size in Cohen's *d* is still an effect and can have a significant influence (Glen, 2020), a medium effect showed that these results should not be ignored and had strong significance.

In examining the articles for the second research question, all the articles had statistical significance. Two articles had large effect sizes and one had a medium effect size. Also, one had a small effect size, and two articles had below small effect sizes.

The weighted mean effect size produced a close to large effect. If one had dismissed the single articles with small or below small effect sizes as of no importance, the weighted mean large effect size would have been ignored. Consequently, a strongly significant study would have been diminished when it could have helped in future research and in helping the populations this study covers.

In examining the articles for the third research question, half of the articles had statistical significance. Half the articles had medium effect sizes and the other half had below small effect sizes. The weighted mean effect size produced a below small effect.

I conducted two extra comprehensive searches for articles just before completing Chapters 4 and 5 of this study. However, when it was ascertained that the searches were becoming continually repetitious, it was prudent to stop. I discovered that many of the articles connected PTSD to sexual assault and PTSD to intimate partner violence, but not all three. Nevertheless, because the articles connected them both to PTSD, it is still important to examine these areas.

As discussed earlier, it is a fallacy to believe one can only conduct a meta-analysis by using large amounts of research articles (Littell et al., 2008). Technically, in a meta-analysis, even single-subject designs can be used. While my aim was to find as many good quality articles as possible, as that is the aim of a meta-analysis (see Littell et al., 2008), the search yielded four articles.

To negate this path, because the articles yielded results of either one or the other, would be shortsighted. Half of the articles were statistically significant. Also, medium effect sizes and the plethora of articles showing the connections of PTSD to each one of these variables suggest that other research questions in these areas should be investigated.

The results of this study clearly illustrated the benefit of a meta-analysis, especially with the weighted mean effect sizes, which are the backbone of a meta-analysis. Additionally, all the articles for all the research questions, except for two, showed statistical significance. Therefore, the overall conclusion of this meta-analysis

shows that there should be continuing research in these areas and beyond. Furthermore, these results could be used to help the populations addressed in this study, get properly diagnosed and get the services they need.

The findings served several purposes. First, as mentioned, this study could be used as a springboard for future studies examining PTSD and factors that affect and/or exacerbate the symptoms. In that vein, it could also be used to help family members and society better understand PTSD, to potentially help reduce misunderstanding, judgment, and stereotypes.

Secondly, this study helped shine a light on populations that are not military, combat populations. In doing so, it revealed the need to understand all the potential populations PTSD can affect. It is important to understand that PTSD can have innumerable triggers, causes, exacerbations, and comorbid implications.

Thirdly, these first two findings help lead up to the third, which is treatment implications. When there is a better understanding of a diagnosis and the diagnostic criteria of a disorder, there is a more likely chance for accuracy in diagnosis. With this better understanding, there is the stronger potential for helping everyone receive the treatment and interventions they actually need, as opposed to receiving an improper diagnosis and treatment plan, losing hope, and potentially increasing symptoms, and the possibility of comorbidity.

Lastly, while combat PTSD is recognized in the military, this study could help medical personnel, military members and veterans, and the population at large, understand that PTSD within the military covers more than combat. Domestic violence,

sexual assault, and substance use and abuse, as well as a myriad of other issues and conditions, are just as likely to occur in the military. Military personnel may need more specialized treatment plans and interventions in these areas. Therefore, understanding in these areas would likely be highly beneficial.

## Reliability and Validity

In a meta-analysis, reliability limitations can occur with the populations used or the reliability of the participants, which can occur if the research articles are unreliable. In a meta-analysis, the writer has more control in picking participants than someone who is dealing with live participants (see Lipsey & Wilson, 2001). This is because it is the research articles themselves that are examined, rather than people (Lipsey & Wilson, 2001).

However, the reliability in this depends on the actions of the writer and the process taken to obtain said articles. It is imperative that the searches are thorough and time-consuming (Bramer, 2018). Also, the higher the quality of the research the better the meta-analysis (Littell et al., 2008).

As discussed in previous chapters, I took many steps to ensure the reliability of the articles chosen. As discussed, this was done over months, using multiple databases and search terms, as meta-analytical literature recommends (see Bramer, 2018). Step-by-step, I was careful to choose articles, parsing down gradually, that best represented the study and helped ensure accurate outcomes. While nothing can guarantee a complete absence of reliability issues, these steps help reduce as many reliability issues as possible (see Bramer, 2018).

Validity can be compromised throughout the meta-analytical process (Greco, 2013). To try to combat this, I was attentive to the process of each step. For example, when conducting the statistics, I repeated the calculations several times to ensure accuracy.

Additionally, when I observed the chosen effect size was not the best one for the present study, I researched and found a more appropriate choice. I then started over in conduction of the statistics. Again, while natural human error, in the studies being researched and the study that was conducted can occur, I took all the possible steps to help minimize this.

As with reliability, choosing the correct studies is paramount to all areas, including obtaining pooled means and effects (Greco, 2013). As described in other chapters and in the above paragraphs, I took as many precautions as possible to obtain the most appropriate articles for this study. At all times, I kept the notions of maintaining proper meta-analytical procedures, study reliability, and study validity as main foci in my research and writing processes.

## Recommendations and Future Research

As stated, the statistically significant results, individual Cohen's *d* results, and especially the pooled results, helped provide good arguments for why PTSD in civilian sexual assault and other trauma cases should be investigated in diagnosing and providing proper treatment. Other studies should investigate military, non-combat situations, such as sexual assault, and comorbid alcohol dependence/addiction, and intimate partner violence. They should also delve into other similar areas.

As discussed earlier and appears to hold up after the results section, are that factors such as childhood traumas, ethnicity, socio-economic status (SES), educational level, and sexual orientation, appear to be factors in the potential development of PTSD. Traumas in men also appear to be factors in the potential development of PTSD. More studies covering these areas would likely be beneficial and help even more oft misunderstood populations

These types of studies could potentially help in such areas as diagnosis and treatment. They can also help lay people possibly understand what their loved ones are experiencing. It can also help them understand why their loved ones might respond the way they do in various situations or to various stimuli.

In researching the appropriate articles for this study, I had to eliminate several articles that related to childhood trauma, as they did not pertain to the research questions for this study. This shows that people are interested in investigating this link, but there is still a gap in this area and future research would likely be beneficial. Childhood traumas have been robustly linked to mental health issues occurring later in life, including issues with alcohol and PTSD (Ullman & Peter-Hagene, 2016). Examining childhood sexual assault, and its impact on future sexual assaults, would all likely be highly beneficial for treatment and in understanding how previous sexual traumas, may impact outcomes such as self-blaming, social supports, and in processing repeat trauma, among other things.

All women, of all ethnicities, (actually men and women of all ages and ethnicities) experience and are vulnerable to sexual assault. While sexual assault does not discriminate, there are differences in ethnicities when it comes to resulting issues (Long

& Ullman, 2016; & Lipsky et al., 2016). Additionally, in examining sexual assault, there are also differences in men, as compared to women, especially in the ways men process the trauma and in social support (Petersson & Plantin, 2019).

As with Caucasian women, one in five Black/African American women is sexually assaulted (Long & Ullman, 2016). However, Black/African American women have more issues with alcohol (Long & Ullman, 2016) and other ongoing mental health issues (Lipsky et al., 2016) than Caucasian or Latina women. Native women are two times more liable to be sexually assaulted than any other race (Gebhardt & Woody, 2012), and have a high incidence of all types of abuse, including sexual abuse, rape, and physical abuse (Farley et al., 2016). Additionally, Black/African American and Hispanic/Latina women are more apt to encounter interpersonal violence that Caucasian women (Lipsky et al, 2016).

Reactions from others also vary by ethnicity, which would likely impact negative outcomes, including PTSD (Skybo, 2005). Minority women, except Asian women, report more negative responses and blame from perceived social supports (Ullman & Filipas, 2001). While Asian women are less likely to have negative outcomes, they are also culturally influenced not to talk about it or seek therapeutic intervention (Ullman, 2010).

This may contribute to minority women being less likely to immediately report following sexual assault than Caucasian women (Ullman, 2010). This can contribute to an increase in symptoms, like suicidal ideation, substance abuse, eating disorders, and depression over Caucasian women (Cuevas et al., 2015). This can result in postponed

help or a lack of help when delays in reporting or not reporting at all occur (Cuevas et al., 2015).

Examining sexual assault and PTSD in different ethnicities and cultures would likely be highly beneficial. This is especially applicable in such a diverse world and gives help and understanding to those who might fall through the cracks of society and be denied help. While every person in every ethnicity and culture likely feels trauma after a sexual assault, and all need understanding, ethnic and cultural influences need to be understood, so the person is not further traumatized.

Lesbian and bisexual women are sexually assaulted more often than heterosexual women, and are at an increased risk throughout their lives, even as children (Sigurvinsdottir & Ullman, 2016). They also have a high level of comorbidity with PTSD and substance abuse (Vogel & Marshall, 2001). Bisexual women also have higher incidence of depression and PTSD than lesbian and heterosexual women (Ullman et al., 2006).

Women, who are bisexual, get more negative feedback and blame than heterosexual or lesbian women (Long et al., 2007). However, they tend to report their sexual assault to professional medical and mental health service professionals' more often (Long et al., 2007). Examining sexual assault and sexual orientation in cases of sexual assault would likely be highly beneficial in understanding the sexual assault survivor's feelings, experiences, and needs.

Lower income and lower educated women who have been sexually assaulted, are especially vulnerable to intimate partner violence and PTSD, and comorbid substance

abuse (Vogel & Marshall, 2001). Additionally, the lower the SES, less sympathy and more blaming is provided to survivors (Ullman, 2010). Thus, this would likely leave women with lower SES in more difficult situations, in terms of finances, social supports, and available services, than those with higher SES.

Examining SES, sexual assault, and PTSD in future research would likely be highly advantageous. With all the negativity discussed above, a person who has lower SES and education would not only endure all those things, but also likely have difficulty getting the proper resources or help after the sexual assault. This would also likely leave them vulnerable to other negative effects of the sexual assault.

Throughout this study, men have been mentioned in contrast to women to help explain why the focus is on women. However, it is important for future research to focus on men who are sexually assaulted. The national rates of sexual assault are as high as 5% for men (Busch-Armendariz et al., 2011). Additionally, after a sexual assault, PTSD rates have been shown to be as high as 95% (Elklit & Christiansen, 2013).

Sexual assault can happen to anyone and causes harmful psychological issues in all affected (Kuehn, 2011). Where gender does not appear to vary in cases of sexual assault, is that it is extremely negatively impactful (Petersson & Plantin, 2019). It has been shown to be linked to PTSD, anxiety, suicidality, self-injurious behaviors, and depression, among other things, in all genders (Petersson & Plantin, 2019).

Where men and women seem to differ the most in cases of sexual assault is the way they process and cope afterwards, and by way of support and societal views (see Petersson & Plantin, 2019). Besides the trauma of the sexual assault, men also have to

cope with societal stigmas that blame the victim (Petersson & Plantin, 2019). Being sexually assaulted is a threat to their masculinity. As a result, the survivor ends up suffering in silence and forgoes seeking any kind of help (Petersson & Plantin, 2019). Future research in this area could help encourage awareness about sexual assault in ways that reduce stigma, and promote avenues of help for men.

## Study Limitations

In a meta-analysis, certain things are under one's control that are not in other types of studies. However, limitations of a study are potential items that are not typically in the writer's control (Simon, 2011). Two of the main issues in a meta-analysis are discussed in this section.

For the first one, part of this limitation was in my control, while another part of it was not. The limitation of reliable populations is one that is not unique to a meta-analysis. As discussed, in the case of a meta-analysis, reliability of the participants is dependent on the research articles being reliable and the quality of the articles themselves (Littell et al., 2008).

It is critical to keep this potential limitation in mind when choosing articles. Thus, it is incumbent upon the writer of a meta-analysis to be responsible and thorough in their searches, in keeping with proper meta-analytic procedures (see Bramer et al., 2018). Alternatively, this limitation could also be a benefit because the writer has more control in choosing research articles, than someone who is dealing with live participants (Lipsey & Wilson, 2001).

In choosing research articles for this study, I took careful steps to choose articles that best represented the study and allowed for the most accurate outcomes. As discussed, including in the reliability and validity section, there was a carful procedure for doing this. The process included doing multiple, large searches that started by gathering all the articles remotely related to the research questions. The process continued by investigating each article and paring them down in stages, until the most appropriate articles were left.

While I took all these steps in helping to ensure reliable article selection, I was still bound by certain limitations. Some potential limitations or issues I considered when conducting my research searches were limitations of the articles available, the minute potential for human error in the articles themselves, and the selection of the articles, even though every precaution was taken in conducting complete searches and in pairing down the articles. While it should be expected that published articles have been properly vetted, including in peer-reviews, they are still written and evaluated by humans.

Another limitation stems from the research that is available. The articles were culled from many databases and by using a wide variety of applicable terms. However, as thorough as the searches were, there likely were useable articles that did not come up in the many searches. They may not have been available on said databases. Additionally, while the terms used for the searches were thorough and covered the topics in various ways, there could have been terms left out that would have yielded different results.

As discussed, most studies focusing on PTSD are centered on veterans' populations (APA, 2021). Additionally, studies on military and veteran populations appear to focus more on combat situations rather than sexual assault in the military

(Parnell et al., 2018). Given this, there is a need for change and more research should focus on populations, military and otherwise, who experience sexual assault and other traumas.

No matter the study and the careful and thorough research done, there is still the potential for missing something. The researcher/writer is human, as are those who wrote the articles used in a meta-analysis. Human error is a fundamental part of life. However, it is assumed that the published articles are as accurate as possible, and that I was as thorough as possible.

### Positive Social Change

Positive social change was covered earlier in the study. This section encapsulates and puts a period on the topic. The potential for positive social change is abundant in this study. Sexual assault survivors would likely require and benefit from both medical and psychological services. Being able to access care workers who were adept in these areas and getting the proper immediate and long-term services would likely help the individual.

When awareness and appropriate services are available this likely would contribute to positive social change as this can potentially help people regain their lives, and in turn allow them to potentially function positively in all areas of their lives. Thus, the survivor would be less likely to need continual crisis care, which would likely not work, if it were inappropriate for the population and their needs. This would help not only the individual, but the already stretched healthcare resources, if people were getting what they need rather than going through an ineffective revolving door.

Lastly, most of the research questions were shown to be statistically significant. This suggests that the above points are particularly salient. Because of this, it would be worth doing further research and directing more appropriate services to these areas.

## Conclusion

The results were based on conducting a quantitative; random-effects model meta-analysis. This was done by doing thorough searches for suitable articles on which to conduct statistics for the analyses. The searches were done using multiple databases and search terms, as discussed in detail in the body of the paper. Once the final selection of articles was made, statistics were conducted to obtain the effect sizes of all the articles for all the research questions, using Cohen's *d*.

Once this was completed the results were tabled and discussed. Then, in keeping with conducting a meta-analysis, the weighted mean effect sizes were calculated for each group of articles for each research question. They were also tabled and discussed.

Through the conduction of this study, by analyzing the statistics and the results, the upheld conclusion was that most of the research questions were significant. In examining the first two research questions, this appeared to be the case. Therefore, this study strongly suggests that: there is a relationship between the occurrence of a sexual assault and the development of posttraumatic stress disorder in women who have been sexually assaulted and there is a relationship between the presence of alcohol dependence/addiction and sexual assault and the development of PTSD in women.

There is a potential relationship between intimate partner violence and the development of posttraumatic stress disorder in women who have been sexually

assaulted, as I observed through the many searches, and by the multitude of articles found in these areas. This area of research could be further examined by, for example, using different research questions. Another tactic could be breaking the research question apart and examining PTSD and intimate partner violence or sexual assault and intimate partner violence.

In conducting this study, doors for so many avenues of research were opened. It was a main goal of mine to create awareness and potentially open the door for further research and understanding into PTSD beyond combat populations. The results of this study have accomplished that.

References

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.).

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.).

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.).

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://dx.doi.org/10.1176/appi.books.9780890425596

American Psychiatric Association. (2021). *What is posttraumatic stress disorder?* https://www.psychiatry.org/patients-families/ptsd/what-is-ptsd

Armour, C., Elklit, A., Lauterbach, D., Elhai, J. D. (2014). The DSM-5 dissociative-PTSD subtype: Can levels of depression, anxiety, hostility, and sleeping difficulties between dissociative-PTSD and PTSD in rape and sexual assault victims? *Journal of Anxiety Disorders, 28,* 418–426. https://dx.doi.org/10.1016/j.janxdis.2013.12.008

Arvey, R. D. & Chan, M. L. E. (2012). *Meta-analysis helps psychologists build knowledge*. Association for Psychological Science. https://www.psychologicalscience.org/news/releases/meta-analysis-helps-psychologists-build-knowledge.html

Basile, K. C., Smith, S. G., Breiding, M. J., Black, M. C., & Mahendra, R. R. (2014). *Sexual Violence surveillance: Uniform definitions and recommended data*

*elements, version 2.0.* National Center for Injury Prevention and Control, Centers

for Disease Control and Prevention.

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja

&uact=8&ved=2ahUKEwjK39ylL_wAhUaB50JHYxBA0UQFjACegQIAxAD&

url=https%3A%2F%2Fwww.cdc.gov%2Fviolenceprevention%2Fpdf%2Fipv%2F

intimatepartnerviolence.pdf&usg=AOvVaw3wMDliryt7F4VBHj05VJTw

Bedard-Gilligan, M., Cronce, J. M., Lehavot, K., Blayney, J. A., & Kaysen, D. (2014).

The relationship between assault and physical health complaints in a sample of

female drinkers: Roles of avoidant coping and alcohol use. *Journal of*

*Interpersonal Violence, 29*(8), 1359-1379.

https://dx.doi.org/10.1177/0886260513507139

Black, M. C., Basile, K. C., Breiding, M. J., Smith, S. G., Walters M. L., Merrick M. T.,

Chen, J., & Stevens M. R. (2011). *The national intimate partner and sexual*

*violence survey (NISVS): 2010 summary report.* National Center for Injury

Prevention and Control, Centers for Disease Control and Prevention.

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2a

hUKEwiciIrd-

b_wAhVIG80KHdt4DfIQFjAAegQIAhAD&url=https%3A%2F%2Fwww.cdc.go

v%2Fviolenceprevention%2Fpdf%2Fnisvs_report2010-

a.pdf&usg=AOvVaw0llriZBfbRzw1sTJS4AmLh

Blancoa, C., Xua, Y., Brady, K., Pérez-Fuentesa, G., Okudaa, M., & Wanga, S. (2013).

Comorbidity of posttraumatic stress disorder with alcohol dependence among US

adults: Results from national epidemiological survey on alcohol and related

conditions. *Drug and Alcohol Dependence, 132,* 630– 638.

https://dx.doi.org/10.1016/j.drugalcdep.2013.04.016

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction*

*to meta-analysis.* John Wiley & Sons, Ltd.

Bown, M. J. & Sutton, A. J. (2010). Quality control in systematic reviews and meta-

analyses. *European Journal Vascular Endovascular Surgery, 40*, 669-677.

https://dx.doi.org/10.1016/j.ejvs.2010.07.011

Brady, K. T. & Back, S. E. (2012). Childhood trauma, posttraumatic stress disorder, and

alcohol dependence. *Alcohol Research, 34*(4), 408–413.

Bramer, W. M., de Jonge, G. B., Rethlefsen, M. L., Mast, F., & Kleijnen, J. (2018). A

systematic approach to searching: An efficient and complete method to develop

literature searches. *Journal of the Medical Library Association, 106*(4), 531-541.

https://dx.doi.org/10.5195/jmla.2018.283

Breiding, M. J., Basile, K. C., Smith, S. G., Black, M. C., Mahendra, R. (2015). *Intimate*

*partner violence surveillance uniform definitions and recommended data*

*elements, version 2.0.* National Center for Injury Prevention and Control, Centers

for Disease Control and Prevention.

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja

&uact=8&ved=2ahUKEwjw5arF-

7_wAhWIPM0KHffHBaUQFjABegQIAhAD&url=https%3A%2F%2Fstacks.cdc

.gov%2Fview%2Fcdc%2F31292&usg=AOvVaw0MpPmBFTWkPJbpq6EdNre6

Brown, J., Burnette, M. L., & Cerulli, C. (2015). Correlations between sexual abuse

histories, perceived danger, and PTSD among intimate partner violence victims.

*Journal of Interpersonal Violence, 30*(15), 2709-2725.

https://dx.doi.org/10.1177/0886260514553629

Buchwald, E. (Ed.), Fletcher, P. R. (Ed.), & Roth, M. (Ed.). (2005). *Transforming a rape

culture* (2nd ed.). Milkweed Editions.

Busch-Armendariz, N. B., Bell, H., DiNitto, D. M., Vohra-Gupta, S., McDaniel Rhodes,

D. (2011). The prevalence of sexual assault: Evidence for social work education

and practice. *Social Work Review, X*(1), 59-75.

Campbell Collaboration. (2020). *Practical Meta-Analysis Effect Size Calculator.*

https://campbellcollaboration.org/escalc/html/EffectSizeCalculator-SMD17.php

Carper, T. L., Mills, M. A., Steenkamp, M. M., Nickerson, A., Salters-Pedneault, K., &

Litz, B. T. (2015). Early PTSD symptom sub-clusters predicting chronic

posttraumatic stress following sexual assault. *Psychological Trauma: Theory,

Research, Practice, and Policy, 7*(5), 442-447.

https://dx.doi.org/10.1037/tra0000060

Cascardi, M., Armstrong, D., Chung, L., & Par´e, D. (2015). Pupil response to threat in

trauma-exposed individuals with or without PTSD. *Journal of Traumatic Stress,

28,* 370–374. https://dx.doi.org/10.1002/jts

Centers for Disease Control and Prevention. (2016). *Sexual violence/definitions*.

https://www.cdc.gov/violenceprevention/sexualviolence/definitions.html

Cooper, H. (2010). *Research synthesis & meta-analysis* (4th ed.). SAGE Publications, Inc.

Cooper, H. (Ed.), Hedges, L. V. (Ed.), & Valentine, J. C. (Ed.). (2009). *The handbook of research synthesis and meta-analysis* (2nd ed.). Russell Sage Foundation.

Cordero, M. I., Moser, D. A., Manini, A., Suardi, F., Sancho-Rossignol, A., Torrisi, R., Rossier, M. F., Ansermet, F., Dayer, A. G., Rusconi-Serpa, S., & Schechter, D. S. (2017). Effects of interpersonal violence-related post-traumatic stress disorder (PTSD) on mother and child diurnal cortisol rhythm and cortisol reactivity to a laboratory stressor involving separation. *Hormones and Behavior, 90*, 15-24. https://dx.doi.org/10.1016/j.yhbeh.2017.02.007

Cuevas, C. A., Sabina, C., & Picard, E. H. (2015). Posttraumatic stress among victimized Latino women: Evaluating the role of cultural factors. *Journal of Traumatic Stress, 28*, 531-538. https://dx.doi.org/10.1002/jts.22060

Cumming, G., Fidler, F., Vaux, D. L. (2007). Error bars in experimental biology. *The Journal of Cell Biology, 177*(1), 7-11. https://dx.doi.org/10.1083/jcb.200611141

DeCoster, J. (2009). *Meta-analysis notes.* http://www.stat-help.com/notes.html

Degenhardt, L., Hall, W., & Lynskey, M. (2003). What is comorbidity and why does it occur. In M. Teeson, & H. Proudfoot, (Eds.), *Comorbid mental disorders and substance use disorders: Epidemiology, prevention, and treatment.* (pp. 10-20). Australian Government, Population Health Division, Department of Health and Ageing.

Dworkin, E. R., Ojalehto, H., Bedard-Gilligan, M. A., Cadigan, J. M., & Kaysen, D.

    (2018). Social support predicts reductions in PTSD symptoms when substances

    are not used to cope: A longitudinal study of sexual assault survivors. *Journal of*

    *Affective Disorders, 229*, 135-140. https://dx.doi.org/10.1016/j.jad.2017.12.042

Earle, J. P. (2009). Acquaintance rape workshops: Their effectiveness in changing the

    attitudes of first year college men. *NASPA Journal, 46*(3), 417-433.

    https://dx.doi.org/10.2202/1949-6605.5018

Elklit, A., & Christiansen, D. M. (2013) Risk factors for posttraumatic stress disorder in

    female help-seeking victims of sexual assault. *Violence and Victims, 28*(3), 552-

    568. http://dx.doi.org/10.1891/0886-6708.09-135

Ellis, P. D. (2010). *The essential guide to effect sizes.* Cambridge University Press.

Ellis, P. D. (2020). *Effect size matters.* Kings Press.

Farley, M., Deer, S., Golding, J. M., Matthews, N., Lopez, G., Stark, C., & Hudon, E.

    (2016). The prostitution and trafficking of American Indian/Alaska Native women

    in Minnesota. *Journal of the National Center, 23*(1), 65-104.

    https://dx.doi.org/10.5820/aian.2301.2016.65

Feuer, C. A., Nishith, P., & Resick, P. (2005). Prediction of numbing and effortful

    avoidance in female rape survivors with chronic PTSD. *Journal of Traumatic*

    *Stress, 18*(2), 165-170. https://dx.doi.org/10.1002/jts.20000

Galovski, T. E., Blain, L. M., Chappuis, C., & Fletcher, T. (2013). Sex differences in

    recovery from PTSD in male and female interpersonal assault survivors.

*Behaviour Research and Therapy, 51,* 247-255.

https://dx.doi.org/10.1016/j.brat.2013.02.002

Gavranidou, M. & Rosner, R. (2003). The weaker sex? Gender and post-traumatic stress

disorder. *Depression and Anxiety, 17*, 130-139.

https://dx.doi.org/10.1002/da.10103

Gebhardt, A. R. & Woody, J. D. (2012). American Indian women and sexual assault:

Challenges and new opportunities. *Journal of Women and Social Work, 27*(3),

237-248. https://dx.doi.org/10.1177/0886109912452642

George Mason University. (2020). *David B. Wilson*. https://cls.gmu.edu/people/dwilsonb

George, W. H., Davis, K. C., Masters, N. T., Jacques-Tiura, A. J., Heiman, J. R., Norris,

J., Gilmore, A. K., Nguyen, H. V., Kajumulo, K. F., Otto, J. M., Andrasik, M. P.

(2014). Sexual victimization, alcohol intoxication, sexual-emotional responding,

and sexual risk in heavy episodic drinking women. *Archives of Sexual Behavior,*

*43*, 645–658. https://dx.doi.org/10.1007/s10508-013-0143-8

Glen, S. (2020). *Cohen's D: Definition, examples, formulas*. StatisticsHowTo.

https://www.statisticshowto.com/cohens-d/

Graham, J., Legarreta, M., North, L., DiMuzio, J., McGlade, E., &Yurgelun-Todd, D.

(2016). A preliminary study of DSM–5 PTSD symptom patterns in veterans by

trauma type. *Military Psychology, 28*(2), 115–122.

http://dx.doi.org/10.1037/mil0000092

Greco, T., Zangrillo, A., Biondi-Zoccai, G., Landoni, G. (2013). Meta-analysis: Pitfalls

and hints. *Heart, Lung and Vessels, 5*(4), 219-225.

Griffin, M. J. & Read, J. P. (2012). Prospective effects of method of coercion in sexual victimization across the first college year. (2012). *Journal of Interpersonal Violence, 27*(12), 2503-2524. https://dx.doi.org/10.1177/0886260511433518

Hansen, N. B., Hansen, M., Hjort, L., & Elklit, A. (2017). Positive or negative changes in outlook on life following sexual assault and associations to PTSD severity. *Sexual and Relationship Therapy, 32*(1), 36-45.

https://dx.doi.org/10.1080/14681994.2016.1169266

Hapke, U., Schumann, A., Rumpf, H. J., Ulrich, J., & Meyer, C. (2006). Post-traumatic stress disorder the role of trauma, pre-existing psychiatric disorders, and gender. *European Archives of Psychiatry & Clinical Neuroscience, 256*, 299-306.

https://dx.doi.org/10.1007/s00406-006-0654-6

Hohn, R. E., Slaney, K. L., Tafreshi, D. (2020). An empirical review of research and reporting practices in psychological meta-analysis. *Review of General Psychology, 24*(3), 195-209. https://dx.doi.org/10.1177/1089268020918844

Hong Kong Polytechnic University. (2009). *Effect size equations (Paul D. Ellis).*

https://www.polyu.edu.hk/mm/effectsizefaqs/effect_size_equations2.html

Hsieh, H. F., Feng, J. Y., & Shu, B. C. (2009). The experiences of Taiwanese women who have experienced domestic violence. *Journal of Nursing Research, 17*(3), 153-160. https://dx.doi.org/10.1097/jnr.0b013e3181b254b8

Kastello, J. C., Jacobsen, K. H., Gaffney, K. F., Kodadek, M. P., Bullock, L. C., & Sharps, P. W. (2016). Posttraumatic stress disorder among low-income women

exposed to perinatal intimate partner violence. *Arch Women's Mental Health, 19*, 521-528. https://dx.doi.org/10.1007/s00737-015-0594-0

Konecky, B., Meyer, E. C., Kimbrel, N. A., & Morossette, S.B. (2016). The structure of DSM-5 posttraumatic stress disorder symptoms in war veterans. *Anxiety, Stress, & Coping, 29*(5), 497-506. https://dx.doi.org/10.1080/10615806.2015.1081178

Kubany, E. S., Hill, E. E., Owens, J. A., Iannce-Spencer, C., McCaig, M. A., Tremayne, K. J., & Williams, P. L. (2004). Cognitive trauma therapy for battered women with PTSD (CTT-BW). *Journal of Consulting and Clinical Psychology, 72*(1), 3-18. https://dx.doi.org/10.1037/0022-006X.72.1.3

Kuehn, B. M. (2011). Group advises clinicians to routinely screen women for sexual assault history. *Journal of The American Medical Association (JAMA), 306*(10), 1072. https://dx.doi.org/10.1001jama.2011.1240

Leese, P. (2001). Essay review: Making shell-shock. *British Journal of Psychology, 92*, 411-415. https://dx.doi.org/10.1348/000712601162167

Lehavot, K., Stappenbeck, C. A., Luterek, J. A., Kaysen, D., Simpson, T. L. (2014). Gender differences in relationships among PTSD severity, drinking motives, and alcohol use in a comorbid alcohol dependence and PTSD sample. *Psychology of Addictive Behaviors, 28*(1), 42–52. https://dx.doi.org/10.1037/a0032266

Lewis, S. & Clarke, M. (2001). Forest plots: Trying to see the wood and the trees. *BMJ Military Health Journal, 322*, 1479-1480. https://dx.doi.org/10.1136/bmj.322.7300.1479

Li, G., Zeng, J., Tian, J., Levine, M. A. H., & Thabane, L. (2020). Multiple uses of forest

    plots in presenting analysis results in health research: A tutorial. *Journal of*

    *Clinical Epidemiology 117*, 89-98.

    https://dx.doi.org/10.1016/j.jclinepi.2019.09.021

Lin, H. (2020). *Effect size converter: Convert between different effect sizes.*

    https://www.escal.site/

Lin, H. (2020). *Hause Lin*. https://www.hauselin.com

Lin, L. (2018). Bias caused by sampling error in meta-analysis with small sample sizes.

    *PLoS ONE, 13*(9), 1-19. https://dx.doi.org/10.1371/journal.pone.0204056

Lipsey, M. W. & Wilson, D. B. (1993). The efficacy of psychological, educational, and

    behavioral treatment: Confirmation from meta-analysis. *American Psychologist,*

    *48*(12), 1181-1209. https://dx.doi.org/10.1037/0003-066X.48.12.1181

Lipsey, M. W. & Wilson, D. B. (2001). *Practical meta-analysis. (*Vol. 49*).* Sage

    Publications, Inc.

Lipsky, S., Kernic, M. A., Qiu, Q., & Hasin, D. S. (2016). Traumatic events associated

    with posttraumatic stress disorder: The role of race/ethnicity and depression.

    *Violence Against Women, 22*(9), 1055-1074.

    https://dx.doi.org/10.1177/1077801215617553

Littell, J. H., Corcoran, J. & Pillai, V. (2008). *Systematic reviews and meta-analysis*.

    Oxford University Press.

Long, L. & Ullman, S. E. (2016). Correlates of problem drinking and drug use in black

    sexual assault victims. *Violence and Victims, 31*(1), 71-84.

    http://dx.doi.org/10.1891/0886-6708.VV-D-14-00024

Long, S. M., Ullman, S. E., Long, L. M., Mason, G. E., & Starzynski, L. L. (2007).

    Women's experiences of male-perpetrated sexual assault by sexual orientation.

    *Violence and Victims, 22*, 684-701.

    https://dx.doi.org/10.1891/088667007782793138

Lorenz, K. & Ullman, S. E. (2016). Exploring correlates of alcohol-specific social

    reactions in alcohol-involved sexual assaults. *Journal of Aggression,*

    *Maltreatment, & Trauma, 25*(10), 1058-1078.

    https://dx.doi.org/10.1080/10926771.2016.1219801

McConnell, A. A., Messman-Moore, T. L., Gratz, K. L., & DiLillo, D. (2017). Beyond

    the force-substance dichotomy: Examining the experience of combined and

    incapacitated type rapes and their relation to PTSD symptoms. *Journal of*

    *Interpersonal Violence*, 1-24. https://dx.doi.org/10.1177/0886260517724252

McNally, R. J., Bryant, R. A., & Ehlers, A. (2003). Does early psychological intervention

    promote recovery from posttraumatic stress? *Psychological Science in The Public*

    *Interest, 4*(2), 45-79. https://dx.doi.org/10.1111/1529-1006.01421

Miscca, G. & Forgey, M. A. (2017). The role of PTSD in bi-directional intimate partner

    violence in military and veteran populations: A research review. *Frontiers in*

    *Psychology, 8*, Article 1394. https://dx.doi.org/10.3389/fpsyg.2017.01394

Moller, A. T., Backstrom, T., Sondergaard, H. P., & Helstrom, L. (2014). Identifying risk

 factors for PTSD in women seeking medical help after rape. *PLOS ONE, 9*(10),

 1-9. https://dx.doi.org/10.1371/journal.pone.0111136

Moser, D. A., Aue, T., Suardi, F., Kutlikova, H., Cordero, M. I., Sancho Rossignol, A.,

 Favez, N., Rusconi Serpa, S., & Schechter, D. S. (2015). Violence-related PTSD

 and neural activation when seeing emotionally charged male-female interactions.

 *Social Cognitive & Affective Neuroscience, 10*(5), 645-653.

 https://dx.doi.org/10.1093/scan/nsu099

National Coalition Against Domestic Violence. (2015). *Domestic violence national*

 *statistics*. http://www.ncadv.org

Norwood, A. & Murphy, C. (2012). What forms of abuse correlate with PTSD symptoms

 in partners of men being treated for intimate partner violence? *Psychological*

 *Trauma: Theory, Research, Practice, and Policy, 4*(6), 596-604.

 https://dx.doi.org/10.1037/a0025232

O'Brien, C., Keith, J., & Shoemaker, L. (2015). Don't tell: Military culture and male rape.

 *Psychological Services, 12*(4), 357-365. https://dx.doi.org/10.1037/ser0000049

Parker-Guilbert, K. S., Leifker, F. R., Sippel, L. M., & Marshall, A. D. (2014). The

 differential diagnostic accuracy of the PTSD Checklist among men versus women

 in a community sample. *Psychiatry Research, 220*, 679-686.

 https://dx.doi.org/10.1016/j.psychres.2014.08.001

Parnell, D., Ram, V., Cazares, P., Webb-Murphy, J., Roberson, M., & Ghaed, S. (2018).

    Sexual assault and disabling PTSD in active duty service women. *Military*

    *Medicine, 183*, e481-e488. https://dx.doi.org/10.1093/milmed/usy048

Petersson, C. C. & Plantin, L. (2019). Breaking with norms of masculinity: Men making

    sense of their experience of sexual assault. *Clinical Social Work Journal, 47*, 372-

    383. https://dx.doi.org/10.1007/s10615-019-00699-y

Planty, M. G., Langton, L, Krebs, C., Berzofsky, M., & Smiley-McDonald, H. (2016).

    *Female victims of sexual violence, 1994-2010*. United States Department of

    Justice, Office of Justice Programs. https://www.ojp.gov/ncjrs/virtual-

    library/abstracts/female-victims-sexual-violence-1994-2010

Rae, R. (2007). An historical account of shell shock during the First World War and

    reforms in mental health in Australia 1914-1939. *International Journal of Mental*

    *Health Nursing, 16*, 266-273. https://dx.doi.org/10.1111/j.1447-

    0349.2007.00476.x

Rape, Abuse, & Incest National Network. (2016). *Statistics.*

    http://www.rainn.org/statistics

Relyea1, M., & Ullman, S. E. (2015). Unsupported or turned against: Understanding how

    two types of negative social reactions to sexual assault relate to postassault

    outcomes. *Psychology of Women Quarterly, 39*(1), 37-52.

    https://dx.doi.org/10.1177/0361684313512610

Salcioglu, E., Urhan, S., Pirinccioglu, T., & Aydin, S. (2016). Anticipatory fear and

    helplessness predict PTSD and depression in domestic violence survivors.

*Psychological Trauma: Theory, Research, Practice, and Policy*, 1-9.

https://dx.doi.org/10.1037/tra0000200

Sawilowsky, S. S. (2009). New effect size rules of thumb. *Journal of Modern Applied Statistical Methods, 8*(2), 597-599.

Saylors, K., & Daliparthy, N. (2006). Violence against Native women in substance abuse treatment. *The Journal of the National Center, 13*(1), 32-51.

https://dx.doi.org/10.5820/aian.1301.2006.32

Sharma-Patel, K., Brown, E. J., & Chaplin, W. F. (2012). Emotional and cognitive processing in sexual assault survivors' narratives. *Journal of Aggression, Maltreatment & Trauma, 21*, 149-170.

https://dx.doi.org/10.1080/10926771.2012.639053

Sidran Institute (2013). *Myths and facts about PTSD.*

http://eds.a.ebscohost.com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?sid=be30607e-7dc1-4ffd-a8aa-b253695eebf4%40sessionmgr4006&vid=0&hid=4205

Sigurvinsdottir, R. & Ullman, S. E. (2016). Sexual assault in bisexual and heterosexual women survivors. *Journal of Bisexuality, 16*(2), 163-180.

https://dx.doi.org/10.1080/15299716.2015.1136254

Simon, M. K. (2011). *Dissertation and scholarly research: Recipes for success* (2nd ed.). CreateSpace Independent Publishing Platform.

Skybo, T. (2005). Witnessing violence: Biopsychosocial impact on children. *Pediatric Nursing, 31*(4), 263-270.

Smith, H. L., Summers, B. J., Dillon, K. H., & Cougle, J. R. (2016). Is worst-event trauma type related to PTSD symptom presentation and associated features? *Journal of Anxiety Disorders 38*, 55–61. https://dx.doi.org/10.1016/j.janxdis.2016.01.007

Southard, E. E. (1919). General psychopathology. *The Psychological Bulletin, 16*(6), 187-199). https://dx.doi.org/10.1037/h0071495

Starzynski, L. L. & Ullman, S. E. (2014). Correlates of perceived helpfulness of mental health professionals following disclosure of sexual assault. *Violence Against Women, 20*(1) 74-94. https://dx.doi.org/10.1177/1077801213520575

Students for Best Evidence (Cochrane UK). (2020a). *Heterogeneity: What is it and why does it matter?* https://s4be.cochrane.org/blog/2018/11/29/what-is-heterogeneity/

Students for Best Evidence (Cochrane UK). (2020b). *Tutorial: How to read a forest plot.* https://s4be.cochrane.org/blog/2016/07/11/tutorial-read-forest-plot/

Szumilas, M. (2010). Explaining odds ratios. *Journal of the Canadian Association of Child and Adolescent Psychiatry, 19*(3), 227-229.

Tarzia, L., Thuraisingam, S., Novy, J., Valpied, J., Quake, R., & Hegarty, K. (2018). Exploring relationships between sexual violence, mental health and perpetrator identity: A cross-sectional Australian primary care study. *BMC Public Health, 18*(1410), 1-9. https://dx.doi.org/10.1186/s12889-018-6303-y

Tracy, C. E., Fromson, T. L., Long, J. G., & Whitman, C. (2012, June 5). *Rape and sexual assault in the legal system*. [Paper presentation]. National Research Council of the National Academies Panel on Measuring Rape and Sexual Assault

in the Bureau of Justice Statistics Household Surveys Committee on National Statistics, Washington DC, United States.

Tsai, J., Armour, C., Southwick, S. M., & Pietrzak, R. H. (2015). Dissociative subtype of DSM-5 posttraumatic stress disorder in U.S. veterans. *Journal of Psychiatric Research, 66*(67), 67-74. https://dx.doi.org/10.1016/j.jpsychires.2015.04.017

Ullman, S. E. (2016). Sexual revictimization, PTSD, and problem drinking in sexual assault survivors. *Addictive Behaviors, 53,* 7–10. https://dx.doi.org/10.1016/j.addbeh.2015.09.010

Ullman, S. E. (2010). *Talking about sexual assault society's response to survivors.* American Psychological Association.

Ullman, S. E. & Filipas, H. H. (2001). Predictors of PTSD symptom severity and social reactions in sexual assault victims. *Journal of Traumatic Stress, 14*(2), 369-389. https://dx.doi.org/10.1023/A:1011125220522

Ullman, S. E. & Filipas, H. H., Townsend, S. M., & Starzynski, L. L. (2006). Correlates of comorbid PTSD and drinking problems among sexual assault survivors. *Addictive Behaviors, 31*, 128-132. https://dx.doi.org/10.1016/j.addbeh.2005.04.002

Ullman, S. E., & Peter-Hagene, L. C. (2016). Longitudinal relationships of social reactions, PTSD, and revictimization in sexual assault survivors. *Journal of Interpersonal Violence, 31*(6), 1074-1094. https://dx.doi.org/10.1177/0886260514564069

Ullman, S. E., Peter-Hagene, L. C. & Relyea, M. (2014). Effects of sexual abuse and recovery coping, emotion regulation, and self-blame as mediators of sexual abuse and psychological symptoms in adult sexual assault. *Journal of Child Sexual Abuse, 23*, 74-93. https://dx.doi.org/10.1080/10538712.2014.864747

Ullman, S. E., Relyea, M., Peter-Hagene, C., Vasquez, A. L. (2013). Trauma histories, substance use coping, PTSD, and problem substance use among sexual assault victims. *Addictive Behaviors, 38,* 2219–2223. https://dx.doi.org/10.1016/j.addbeh.2013.01.027

Ullman, S. E., Townsend, S. M., Starzynski, L. L., & Long, L. M. (2006). Correlates of comorbid PTSD and polysubstance use in sexual assault victims. *Violence and Victims, 21*(6), 725-743. https://dx.doi.org/10.1891/vv-v21i6a004

Uomoto, J. M. & Williams, R. M. (2009). Post-acute polytrauma rehabilitation and integrated care of returning veterans: Toward a holistic approach. *Rehabilitation Psychology, 54*(3), 259-269. https://dx.doi.org/10.1037/a0016907

Ushmita, S. (2019). How to read a forest plot. *Journal of the Practice of Cardiovascular Sciences, 5,* 108-110. https://dx.doi.org/10.4103/jpcs.jpcs_39_19

Vogel, L. C. M. & Marshall, L. L. (2001). PTSD symptoms and partner abuse: Low income women at risk. *Journal of Traumatic Stress, 14*(3), 569-584. https://dx.doi.org/10.1023/A:1011116824613

Waldman-Levi, A., Finzi-Dottan, R., & Weintraub, N. (2015). Attachment security and parental perception of competency among abused women in the shadow of PTSD

and childhood exposure to domestic violence. *Journal of Child & Family Studies,*
*24,* 57-65. https://dx.doi.org/10.1007/s10826-013-9813-3

Walton, J. L., Raines, A. M., Cuccurullo, L.-A. J., Vidaurri, D. N., Villarosa-Hurlocker,
M. C. (2018). The relationship between DSM-5 PTSD symptom clusters and
alcohol misuse among military veterans. *The American Journal on Additction, 27*,
23-28. https://dx.doi.org/10.1111/ajad.12658

Wolf, F. M. (1986). *Meta-analysis quantitative methods for research synthesis.* SAGE
Publications, Inc.

Yusko, D. & Gay, N. (2017). *Post-traumatic stress disorder in civilians.*
https://www.anxiety.org/ptsd-non-veteran-ptsd-post-traumatic-stress-disorder-
civilians

Zang, Y., Gallagher, T., McLean, C. P., Tannahill, H. S., Yarvis, J. S., Foa, E. B. (2017).
The impact of social support, unit cohesion, and trait resilience on PTSD in
treatment seeking military personnel with PTSD: The role of posttraumatic
cognitions. *Journal of Psychiatric Research, 86*, 18-25.
https://dx.doi.org/10.1016/j.jpsychires.2016.11.0050022-3956

Zinzow, H. M., Resnick, H. S., McCauley, J. L., Amstadter, A. B., Ruggiero, K. J., &
Kilpatrick, D. G. (2010). The role of rape tactics in risk for posttraumatic stress
disorder and major depression: Results from a national sample of college women
*Depression and Anxiety, 27,* 708–715. https://dx.doi.org/10.1002/da.20719