

What works for whom? Military sexual trauma vs. campus sexual assault survivors and the effectiveness of therapeutic approaches; a systematic review and comparison.

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### **Abstract**

There are few data comparing military sexual trauma (MST) to civilian sexual trauma; however, there is some anecdotal evidence that MST is unique and may be associated with different mental health outcomes. This may be attributed to the distinct characteristics of MST, including the environment in which the trauma takes place and traits of the perpetrator and the survivor; however, on closer inspection these characteristics are not inimitable and many parallels can be seen when compared with campus sexual assault. While there are studies on the effectiveness of specific interventions, there has not been a systematic review comparing the different interventions and their treatment efficacy on MST or campus sexual assault. Additionally, there have been no previous comparative analyses of treatment efficacy for MST versus campus sexual assault. With the high occurrence of sexual assault on female women in the military and on college campuses, knowing the method and effectiveness of treatment interventions is imperative. Survivors who seek help deserve a treatment conducive to the individual's experience and presenting symptoms. This systematic review and comparative analysis looked to provide insight into what treatments provide the best efficacy within these two populations and offer some guidance on best practices for clinicians working with survivors of MST and/or campus sexual assault.

## **Introduction**

### **Nature of the Problem**

The incidence of rape and sexual assault in the United States is increasing (Truman & Morgan, 2016). Though the estimated number of women who experience sexual assault varies, it is a clear problem throughout the United States. The number of women who report sexual assault is especially pronounced in both the military and on college campuses. In the military it is estimated that 1 in 4 women experience Military Sexual Trauma (MST) during their military careers (National Center for Veterans Analysis and Statistics, 2016). On university and college campuses, 18%-25% of undergraduate women will experience sexual assault while matriculating (Fisher, Cullen, & Turner, 2000; Humphrey & White, 2000; Krebs, Lindquist, Berzofsky, Shook, Peterson, Planty, Langon, & Stroop, 2016; Mouilso, Fischer, & Calhoun, 2012).

There are few data comparing MST to civilian sexual trauma; however, there is some anecdotal evidence that MST is unique and may be associated with different mental health outcomes (Northcut & Kienow, 2014). This may be attributed to the distinct characteristics of MST, including the environment in which the trauma takes place and traits of the perpetrator and the survivor; however, on closer inspection these characteristics are not inimitable and many parallels can be seen when compared with campus sexual assault. Taking into account these populations' similarities, comparative analysis on what is considered best practice for mental health interventions for survivors of MST versus survivors of campus sexual assault may yield useful findings.

Before discussing the similarities between the two populations it is necessary to define MST and campus sexual assault. MST is defined from Federal law (Title 38 U.S. Code 1720D) as "psychological trauma, which in the judgment of a VA mental health professional, resulted

from a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment which occurred while the Veteran was serving on active duty, active duty for training, or inactive duty training." It is notable that the definition of MST covers both physical assault and battery, which includes rape, as well as verbal sexual harassment.

Campus sexual assault has not been legally defined and there has been some discourse over what qualifies. Acquaintance rape is generally included in definitions of campus sexual assault; however, acquaintance rape is but "one aspect of the larger set of problems related to sexual assault of college students" (Sampson, 2011, pg. 7). Other facets of campus sexual assault include sexual battery, unwanted sexual contact, verbal coercion to obtain sexual intercourse, sexual harassment, and stalking (Fisher et al., 2000; Sampson, 2011). As noted with MST, campus sexual assault also covers both physical and verbal sexual assault as well as encompasses a range of behavioral extremes.

When considering the similarities between the two populations, survivor and perpetrator traits are significant. Both populations are predominantly comprised of women 18-24 years of age and a study by the U.S. Department of Justice found that women in this age group are five times more likely to be sexually assaulted than other age groups. Research has also found that this age group is at the highest risk for sexual assault (Sinozich & Langton, 2014; Rennison, 1999). These populations of women are both starting their journeys in life. This is a time of self-exploration and identity formation as young women venture beyond what they know (families, social networks, and communities) and enter a new environment with inherent stressors (Vandeusen & Carr, 2003). Additionally, both of these populations are primarily assaulted by known perpetrators. Street and Stafford (2002) documented that 97% of MST survivors knew their assailants. A study of survivors of campus sexual assault found that approximately 75% of

rapes were committed by someone the victim knew (Sinozich et al., 2014). The percentage of known perpetrators jumps to 90% when ‘attempted rape’ is added into the equation (Fisher et al., 2000).

Survivors of MST and campus sexual assault live within close proximity to their attackers, with MST survivors often living in the same housing as their perpetrator. This can allow for revictimization due to proximity as well as difficulty maintaining anonymity (Krebs et al., 2016). Survivors of MST report being attacked by other service members including individuals in their unit as well as sergeants and other individuals in authority. Campus sexual assault is usually perpetrated by “a boyfriend, ex-boyfriend, classmate, friend, acquaintance, or coworker” (Fisher et al., 2000, pg. 17). Studies have found that disclosure declined in direct parallel as the level of intimacy with the perpetrator increased. 73% of stranger rape survivors confided in someone versus just 44% of women raped by a boyfriend or spouse (Barglow, 2015).

Survivors of MST and campus sexual assault also underreport attacks. The Campus Climate Survey Validation Study (CCSVS) reported that the majority of students raped on campus do not report the incident to school authorities. Statistics provided by the CCSVS revealed that of the 2,380 sexually assaulted students who participated in their study 770 of those rapes occurred on campus and of those 770 only 60 were reported to school authorities (Krebs et al., 2016). One study found that perpetrators of acquaintance or date rape often manipulate survivor into not telling (Resnick, 2001). Another study found that fewer than 5% of college women report their rape or attempted rape to police, often because of embarrassment, shame, and/or self-blame. The same study also found that 40% of those who did not report their assault did so because of fear of retaliation by their attacker or others (Fisher et al., 2000). When the numbers of un-reported rapes are factored into the data, the result is astonishing: only 6 percent

of rapists serve a day in jail. The end result is that 15 of 16 rapists are never prosecuted (RAINN, 2008). The victim-offender relationship also reduces the number of assaults reported. In the study *Numbing After Rape, and Depth of Therapy* the researcher found that, unlike acquaintance rape survivors, stranger rape survivors were more likely to disclose about their experience and report to law enforcement, as well as seek resources such as therapy (Barglow, 2015). One of the problems with low reporting, besides that survivors do not receive the help they need, is that colleges and universities do not know the magnitude of the problem (Benson, Charton & Goodhart, 1992).

Like survivors of campus sexual assault, MST survivors also underreport their assault. There are similar emotional issues that contribute to their silence including shame, self-blame, and embarrassment, as well as a pressure to maintain unit cohesion (Burns, 2013). Advocates hold the military culpable for a culture of secrecy and denial that inevitably discourages women from reporting sexual assault. Additionally, survivors of MST fear that reporting could lead to them losing their military careers (Battered Women's Justice Project, n.d.). Since most perpetrators are peers or supervisors, who have control over their work environment and promotions, many survivors see only two options. They can escape MST and sacrifice their military career or they can file a complaint and risk involuntary discharge (Cater & Leach, 2011). Similar to survivors of campus sexual assault, many survivors of MST do not report the incident for fear of retaliation. This fear has been substantiated. The Rand Military Workplace Study, contracted by the Department of Defense, found that 62% of female MST survivors who reported the incident endured retribution or retaliation (National Defense Research Institute, 2014).

The environment in which the sexual trauma occurs also displays similarities. Both military and college campuses can be seen as a microcosm of the larger community, with their own healthcare services, mental health services, police departments, and judicial processes. Both institutions have a vested interest in not reporting these crimes. The military relies on voluntary enlistment to operate, which women may be less inclined to do if fear of sexual assault was present. Universities and colleges are businesses and rely on student enrollment and tuition to operate. Admitting a high occurrence of sexual assault on campus would be detrimental for business and tarnish their reputation (Ziering & Dick, 2015).

For example, universities and college campuses rely on funding brought in by the Greek System of fraternities and sororities. As such, the propagation of wild parties and binge drinking is tolerated and puts women at a greater risk for sexual assault (Fink, 2010; Meichun, Dowdall, Koss, & Wechsler, 2004). A study by Kelly (2015) found that many college campuses had downgraded acquaintance or date rape to ‘nonconsensual sex’ in a large part to promote certain disciplinary measures. This categorization of sexual violence reduces a felony crime into a “mere honor code violation” (pg. 4). Administrators do not want to accuse fraternity or athletic members of a felony crime, namely rape. This is in part because many members of these organizations have families that contribute generously to the school and/or are part of the school’s athletic departments that are a multi-million dollar industry. Additionally, fraternities provide valuable housing and their alumnus are vital for raising money (Ziering et al., 2015).

Studies have also shown that there is an increase in rape-prone attitudes, traditional gender roles including dominance behaviors, and sexual aggression in fraternities and athletic organizations (Fink, 2010; Bleecker & Murnen, 2005; Humphrey & Kahn, 2000; Murnen & Kohlman, 2007). Two studies found peer support and encouragement as well as attachment to



abusive peers was significantly correlated with self-reported sexual assault (Humphrey et al., 2000). Boeringer (1999) found fraternity and athletic team members to have greater rape-supportive attitudes than nonmember controls. The study hypothesized that membership in exclusive, all-male organizations influences “members’ beliefs about women, sex roles, and sexuality” (pg. 82) and may support a climate that fosters date and acquaintance rape.

Like campus sexual assault, MST is also committed in a cultural climate that fosters sexual attacks. In the military there is the psychological perpetuation of the hypermasculine soldier. Hypermasculinity is a psychological term for the exaggeration of stereotypical male behavior, such as an emphasis on physical strength, aggression, and sexuality (Corprew & Mitchell, 2014). Hypermasculinity is so ingrained in the military culture that it begins in boot camp where new recruits are taught cadences (rhythmic marching chants) that have misogynistic and sexually violent themes. ‘Rape-culture’ is propagated in systems where there are rigid gender stereotypes. Women who do not conform to their assigned roles are threatening to the status quo and violence is a form of dominance and social control (Forbes, 2001). Women in the military are in constant violation of traditional gender roles. Couple that with a culture structured around hypermasculinity, and being “tough”, as well as service personnel who are given few outlets for pent-up feelings and intense stress (Katz, 2016) and it becomes clear how this environment can be conducive to MST among women.

Most vital to this study, survivors of MST and campus sexual assault present with similar psychological problems stemming from their experiences. Disorders and diagnoses include: Post Traumatic Stress Disorder (PTSD), depression, anxiety, rage, self-blame, shame, adjustment disorders, personality disorders, and suicidal ideation and intentional self-inflicted injury (Parcesepe, Martin, Pollock & García-Moreno, 2015; Pavao, J., Turchik, Hyun, Karpenko,

Saweikis, McCutcheon, Kane, & Kimerling, 2013; Surís & Lind, 2008). Rape trauma has many traits of acute stress disorder and turns into post traumatic stress disorder (PTSD) if symptoms persist more than a month. PTSD is characterized by severe anxiety or increased arousal, re-experiencing the rape, avoidance of reminders of the rape, and a variety of dissociative symptoms (American Psychiatric Association, 2013). Of those individuals who have been raped, 50% suffer from PTSD. This statistic is even more notable when considering that only 15% of individuals who have been shot or stabbed present with PTSD (Regehr, Alaggia, Dennis, Pitts, & Saini, 2013). Research with veterans has shown that survivors of MST develop PTSD at higher rates than those exposed to combat trauma. This may be due, in part, to the ongoing stress of having to continue to live and work with the perpetrator and the inability to feel safe in the military environment.

Given the high prevalence of MST and campus sexual assault and the magnitude of the suffering they impose, it is imperative to understand which mental health interventions offer the best possibility for positive treatment outcomes for survivors. With such a dramatic impact on the mental health of individuals, it is crucial to identify the interventions that result in the best positive outcomes.

While there are studies on the effectiveness of specific interventions, there has not been a systematic review comparing the different interventions and their treatment efficacy on MST or campus sexual assault. Additionally, there have been no previous comparative analyses of treatment efficacy for MST versus campus sexual assault. With the populations sharing many characteristics a comparative analysis could be very beneficial. This is especially vital since presently the Department of Veterans Affairs (VA) is addressing the MST phenomenon without the advantage of information on the most effective treatments. This project seeks to not only

research the effectiveness of mental health interventions for MST and campus sexual assault but also evaluate if there are best treatment options available for survivors of MST. A comparative analysis of the systematic reviews of MST and campus sexual assault should provide a foundation on which to draw conclusions on the best practices in mental health treatments for these two populations.

### **Research Questions**

RQ: Which therapeutic interventions prove most effective with military sexual trauma survivors or with campus sexual assault survivors? Is it the same treatment or do the two groups respond to different treatments?

### **Methods**

This study reviewed empirical research on treatment interventions for female survivors of MST and campus sexual assault, in addition to identifying gaps in research, and consideration for future direction for research and practice.

### **Eligibility Criteria**

Published literature from 2001-2016 was searched to identify quantitative and qualitative studies on the effects of mental health treatments on female survivors of military sexual trauma or campus sexual assault. Inclusion dates were selected to reflect the period of increased enlistment of women in the military. Note that in the military, military sexual trauma includes sexual harassment, and so does not require a separate search term. Search terms included: military sexual trauma, MST, military sexual assault, military sexual violence, veteran, campus sexual assault, campus sexual harassment, campus sexual violence, acquaintance rape, date rape, rape, sexual trauma, sexual assault, college student, university, therapy, psychotherapy, treatment interventions, treatment outcomes, and therapeutic treatment. Additionally, a search was

performed to locate any prior studies on these topics that used a systematic review or meta-analysis. It should be noted that none were found.

Searches were conducted in the following manners: (1) use of the term sexual assault, date rape, etc. in the title along with use of the word military, veteran, student, college, university, or campus in the title or in the body of the study, and/or (2) use of the word intervention, treatment, therapy, etc. in the title or in the body of the study, and/or (3) use of the word/term military sexual trauma, acquaintance rape, therapy, interventions, etc. in the subject terms.

### **Information Sources**

Databases searched for relevant material included the following: University of Texas Arlington Library, PsycInfo, Web of Science, Military & Government Collection, Academic Search Complete, PILOTS: Published International Literature on Traumatic Stress, PubMed, Psychology & Behavioral Sciences Collection, and CINAHL Complete.

A total of 1,944 studies were found for possible inclusion in a review of MST treatment outcomes and a total of 1,870 studies were found for possible inclusion in a review of campus sexual assault treatment outcomes. An initial screening of title and abstract was used to eliminate the majority of articles, leaving 159 articles for review. Of those studies, 35 were relevant and, upon comprehensive assessment of these remaining articles, 19 studies met all predetermined inclusion criteria (see Appendix for Table 1).

### **Search Example**

The following is an example of one of the database searches pertaining to treatment outcomes for military sexual trauma. The search was conducted using the University of Texas Arlington Library online system. The advanced search option was utilized to filter for English

only literature within the publication dates of 2001-2016. The content filter was also set to limit display results to journals, journal articles, dissertations/thesis, magazines, magazine articles, and publication articles.

### **Search Fields, Search Terms & Results**

1. Title Field: Military Sexual + All Fields: Treatment Outcome = 88 results
2. Title Field: Military Sexual + All Fields: Therapy = 73 results
3. Title Field: Military Sexual + All Fields: Psychotherapy = 35 results
4. Title Field: Military Sexual + All Fields: Treatment = 133 results
5. Title Field: Military Sexual + All Fields: Therapeutic = 36 results
6. Title Field: Military Sexual + All Fields: Intervention = 96 results
7. Title Field: MST + All Fields: Military Sexual Trauma = 14 results
8. Title Field: Veteran AND Sexual NOT Military Sexual +  
All Fields: Military Sexual Trauma = 43 results

Total Results: 518

### **Study Selection**

The sample for inclusion was any and all available online published scientific literature that included treatment outcomes for either female survivors of MST or campus sexual assault. To increase the availability of literature on the specified topics this study was broad in its design, including case studies and self-reported outcome effectiveness.

Dependent measures to assess the outcome of the intervention were the severity of the traumatic stress symptoms using standardized measures. Secondary outcomes included decreased levels of PTSD, depression, anxiety, and negative cognitions, as well as additional mental health symptomology. Due to limited findings, all therapeutic interventions were eligible for inclusion

in this review. Since the main objective of this systematic review is to compare behavioral health interventions between female survivors of MST and campus sexual assault, treatments based on pharmacology were excluded. Studies that included male subjects and/or subjects who had sexual trauma outside the military or university (i.e. childhood sexual abuse) were omitted unless pertinent measures could be extrapolated.

### **Data Collection Process**

Studies meeting inclusion criteria for the systematic review were organized into the following structured format: 1) study author/s and date of publication, 2) subject criteria, 3) sample size, 4) mean age, 5) study design, 6) research data, 7) study timeframe, and 8) dropout rate (Table 1). After each study was analyzed individually, an overall investigation and comparison of all studies was conducted. The overall comparison was used to determine which treatment modality is most effective in treating sexual trauma in the two different subpopulations of MST and campus sexual assault. To assess the effectiveness of the different treatment modalities the change in symptoms over the course of the treatment was utilized. Patients' PTSD symptoms were measured before and after treatment in the qualifying studies and the difference between pre and post- treatment was considered to demonstrate effectiveness. Since most studies used a measure of PTSD symptoms as at least one of their dependent measures, the results of the PTSD Checklist (PCL), PTSD Symptom Scale Interview (PSS), Post Traumatic Cognition Inventory (PTCI), and Impact of Events Scale (IES) were utilized. In addition to analyzing the difference between these measures' pre and post scores, a percentage of the scoring change was computed as a measure of the effectiveness for each study.

The studies reviewed used modalities/ treatments that varied greatly on the dimension of support available to patients during treatment. Since therapeutic support and the therapeutic

relationship have a strong influence on whether a treatment is effective, the level of support for each treatment was calculated.

The studies were also evaluated for use of prolonged exposure techniques. The degree to which exposure was used was rated for level of intrusiveness (I). Use of this terminology comes from mental health definitions whereupon 'intrusiveness' is described as any thought, image, memory, or idea that is vivid in detail and highly unpleasant or distressing (Brewin, Gregory, Lipton, & Burgess, 2010).

Both these factors were calculated for this study using interrater reliability. Reliability was established by three clinicians (a Ph.D. psychologist, a LMSW, and the investigator of this study) rating each study using a Likert scale from 0 to 5. On determining the level of intrusiveness 0 was 'not intrusive at all' (or using no exposure techniques) and 5 was 'very intrusive'. For ratings of therapeutic support, 0 reflected 'no support at all' and 5 was 'very supportive'. The degree of correlation between each of these dimensions and the percent of symptom improvement was evaluated to assess the relationship or impact of these dimensions on the effectiveness of the treatment.

## **Results**

### **Systematic Review**

After an exhaustive search of literature nineteen studies were found that met the inclusion criteria for research on the effectiveness of treatment outcomes for female survivors of either MST or campus sexual assault. Additional literature is available and offers suggestions on treatment interventions with these populations but these pieces are based on opinion and lack research or experimental design. It should be noted that there are studies analyzing treatment outcomes for acquaintance rape and date rape for non-military and non-student populations.

There are also thorough meta-analyses on mental health treatments for sexual assault with non-military and non-student populations.

### **Military Sexual Trauma**

There is currently no systematic research on the efficacy of mental health treatments on female or male survivors of MST. To date, most treatment options available for this population are through the VA, which provides resources for veterans' physical and mental health. The VA considers MST a type of trauma and trains its therapists to treat MST using the same methods as PTSD (Cater et al, 2011). The VA uses two empirically supported therapies to treat PTSD, cognitive processing therapy (CPT) and prolonged exposure (PE) therapy (Cater et al., 2011; Hines, 2015; U.S. Department of Veterans Affairs, 2016). These therapies, both of which are considered exposure therapies, have garnered the most empirical support with treating individuals suffering with PTSD. They have been shown to be effective for treating PTSD as well as comorbid diagnoses such as depression, anxiety disorders, eating disorders, and substance use disorder (Castillo, 2004; Katz, 2016; Resick, Williams, Suvak, Monson, & Gradus, 2012). This is critical as individuals with MST related PTSD have been found to have more comorbid mental health diagnoses than individuals with non-MST related PTSD (Katz, 2016).

Exposure techniques are the most prevalent psychotherapies utilized with veterans (Hines, 2015; Resick et al., 2012). Developed by Resick and Schnicke (1992) CPT combines information processing with exposure therapy and was adapted for use specifically with sexual assault victims. CPT helps the survivor understand the connectedness of their emotions to their thoughts as well as integrate their trauma as an event that is real and cannot be ignored (Cater et al., 2011). This evidenced based intervention is founded on the information processing theory of PTSD and includes education, cognitive, and exposure-based protocol (Resick & Schnicke,



1993). One of the therapy's main objectives is to help the patient challenge negative cognitions, which reduces PTSD symptoms. One study found that CPT showed efficacy in reducing negative cognitions with survivors of MST (Holliday, Link-Malcolm, Morris, & Surís, 2014). PE helps the individual confront feared situations, thoughts, and feelings in a safe environment with a trained therapist and is used to desensitize and normalize the trauma. A meta-analysis on mental health treatments for PTSD found trauma focused therapies, such as CPT and PE, to be more effective than supportive or non-directive treatment interventions (Cater et al., 2011; Vickerman & Margolin, 2009); however, these studies have also found that dropout rates for PE are high, with one study reporting rates as high as 50% (Barglow, 2015; Cater et al., 2011). Another study reported that "more than one-third of women retain a PTSD diagnosis at post-treatment or dropout of treatment" (Vickerman et al., 2009). That said, it is important to note this analysis did not look at the efficacy of these treatments in respect to veterans who are experiencing PTSD symptomology related to sexual trauma.

In reviewing research for inclusion in this study, CPT was the most prevalent therapy studied with female survivors of MST. Five articles were located that focused on the effectiveness of CPT for female survivors of MST. Interestingly, four of the studies took place in residential treatment facilities with CPT protocol adjusted for this particular setting. Results from all four studies suggest that CPT delivered in a residential treatment program is effective for female veterans suffering with MST related PTSD (Mott, Menefee, & Leopoulos, 2012; Voelkel, Pukay-Martin, Walter, Buckley, Simpson, & Chard, 2014; Walter, & Chard, 2015; Zappert & Westrup, 2008).

*Effectiveness of Cognitive Processing Therapy for Male and Female U.S. Veterans with and without Military Sexual Trauma* utilized a non-randomized study to research the

effectiveness of CPT for veterans experiencing MST related PTSD symptomology (Voelkel et al., 2015). The study, conducted over 7-weeks in a residential treatment setting, was comprised of twice-per-week, 12-session, group and individual CPT protocol and included 129 female subjects with MST-IT and 79 without. In this setting, CPT was found effective for treating PTSD and depressive symptoms with Clinician-Administered PTSD Scale (CAPS) scores reducing by a mean of 34.7 and a reduction in PCL scores by a mean of 19.71. CAPS score changes of 15-points or more has been identified as clinically significant change (Blake, Weathers, Nagy, Kaloupek, Klauminzer, Charney, Keane, & Buckley, 2000). PCL score changes of 10 to 20 points are classified as clinically meaningful (Monson, Gradus, Young-Xu, Schnurr, Price, & Schumm, 2008). Additionally, the subjects showed an improvement in the Beck Depression Inventory (BDI) with pretest scores indicating severe depression and posttest scores in the mild depression range (Voelkel et al., 2015).

*Cognitive Processing Therapy for Posttraumatic Stress Disorder in a Residential Treatment Setting* also studied CPT in a residential treatment setting for female veterans with PTSD. Though this study's inclusion criteria did not specify MST related PTSD all 18 subjects identified MST as a source of their symptoms (Zappert et al., 2008). Zappert et al. utilized the inpatient setting to deliver CPT in a group format during 90-minute sessions, four times a week, over 60 days. The study found that 83.3% of the subjects had clinically significant reductions in PCL scores measuring their PTSD symptoms, with a mean reduction of 18-points, demonstrating efficacy for group delivered CPT. One subject showed minor improvement and two subjects had an increase in their PCL scores from pre to post test.

Another study, *Residential PTSD Treatment for Female Veterans with Military Sexual Trauma: Does a History of Childhood Sexual Abuse Influence Outcome?*, also focused their

work on the effectiveness of CPT delivered in a residential treatment setting for female veterans with MST (Walter et al., 2014). The study focused on comparing female veterans with MST related PTSD, with and without a history of child sexual abuse. For inclusion in this systematic review focusing on MST, the subjects with a history of child sexual abuse were removed from analysis. The subjects (n = 49) were admitted to a 7-week residential PTSD treatment program and received two individual and two group CPT sessions weekly. Subjects additionally attended 25 hours of group therapy weekly focusing on psychoeducation and life skills, with CPT remaining the framework for the program. The study found that 69.4% of the 49 MST-only patients no longer met diagnostic criteria for PTSD post treatment. BDI scores also showed a means improvement in subjects from severe depression to moderate depression.

*Treating PTSD and Disordered Eating in the Wake of Military Sexual Trauma: A Case Study* researched comorbidity rates between PTSD and disordered eating with a female veteran in a residential treatment program (Mott, Menefee, & Leopoulos, 2012). This case study initially targeted a female soldier who was admitted to a 25-day trauma program after experiencing MST. The subject was violently raped by another soldier during deployment. It was during her 2<sup>nd</sup> week of treatment that it was discovered that she was also struggling with disordered eating and questions about effective treatment were considered. A treatment approach of CPT, modified for a residential setting, was administered daily for 90 minutes along with individual exposure-based therapy for 60 minutes twice a week. The subject also received 5-7 hours of group and individual treatment each day. Though the authors reported that measures showed a significant reduction in PTSD symptoms, the subject's PCL scores only reduced by 9-points. As noted earlier, for PCL scores to be defined as clinically meaningful they must show a decrease of at least 10-points. The study was unable to show efficacy for their treatment protocol with the subject's comorbid eating

disorder and the subject was referred to another residential trauma-focused program that specialized in eating disorders.

The only MST study that utilized CPT in an outpatient setting compared CPT with non-trauma focused Present Centered Therapy (PCT), *Effects of Cognitive Processing Therapy on PTSD-Related Negative Cognitions in Veterans With Military Sexual Trauma* (Holliday, Link-Malcolm, Morris, and Surís, 2014). The researchers hypothesized that negative cognitions contribute to PTSD severity and CPT's ability to target those cognitions would be greater than PCT. The study was comprised of 45 female veterans and used the PTCI to measure negative cognitions, which includes 3 negative cognition subscales (self, the world, and self-blame). Outcomes indicated that CPT more effectively reduced overall negative cognitions as compared to PCT. The effects were also more stable over time in the CPT groups. CPT significantly reduced negative cognitions in 2 of the subscales (self and the world) but did not have a significant effect on negative cognitions about self-blame as compared to the PCT group. As the research hypothesized, PTSD severity at initiation of 12-session treatment was positively correlated with high negative cognitions in all 3 PTCI subscales.

Two studies were found for inclusion that used an exposure-based therapy that was not solely CPT. *Comparison of Accelerated Resolution Therapy (ART) for Treatment of Symptoms of PTSD and Sexual Trauma Between Civilian and Military Adults* studied accelerated resolution therapy (ART), an emerging, brief exposure-based therapy, for treatment of PTSD symptoms (Kip, Hernandez, Shuman, Witt, Diamond, Davis, Kip, Abhayakumar, Wittenberg, Girling, Witt, & Rosenzweig, 2015). The brief interventions were only 1 to 5 sessions, 60 to 75 minutes long, and involved "imaginal exposure, imagery rescripting, and use of bilateral eye movements" (pg. 965). Six subjects with MST related PTSD were treated and 66.7% of the subjects showed

clinically significant improvement on PCL measurements. *An Evolving Integrative Treatment Program for Military Sexual Trauma (MST) and One Veteran's Experience* studied the efficacy of a phase model for use with trauma survivors with complex symptoms (Ferdinand, Kelly, Skelton, Stephens, & Bradley, 2011). The phase model begins with stabilization followed by a phase focused on trauma memories and lastly a phase on re-establishing adaptive functioning including interpersonal relationships and engaging in meaningful activities. It is important to note, the second phase is a trauma-focused treatment phase and utilizes exposure-based psychotherapy such as CPT and/or PE. The authors of the study demonstrated the efficacy of the phase model through a case study with a subject being treated for MST related PTSD along with a history of additional traumas. The subject met diagnostic criteria for major depressive disorder as well as indicated severe PTSD on the PCL. By the end of treatment, PCL scores dropped 16 points, to just one point above the threshold diagnosis of PTSD. The subject also showed improvement in quality of life measures.

Though most research written about traditional therapeutic techniques is limited in its scope to CPT and exposure-like therapies when analyzing MST, there was one study, *Acceptance and Commitment Therapy in the Treatment of Depression Related to Military Sexual Trauma in a Woman Veteran: A Case Study*, that analyzed an additional therapy (Hiraoka, Cook, Bivona, Meyer, & Morissette, 2016). The study looked at Acceptance and Commitment Therapy (ACT) for the treatment of depression with a MST survivor. The subject of this case study received 24 one-hour sessions of individual therapy over 7 months to target high scoring measures of psychological inflexibility, distress levels, and severe depressive symptoms. By the end of treatment the subject's symptoms improved and her BDI-II score indicated depressive symptoms in the mild range. The study was also successful in demonstrating positive outcomes

with the use of mindfulness, metaphors, and activities that targeted inflexible thought patterns within the scope of ACT. Additionally, since depression is a common symptom of MST this study was valuable in demonstrating the necessity of the VA to acknowledge the full range of MST related mental health problems. The study defined MST as more than just “trauma” with a diagnosis of PTSD and, additionally, called for mental health interventions based on veterans’ specific presenting problems (Hiraoka et al., 2016).

The majority of articles viable for inclusion in this study used non-traditional interventions with female veterans suffering from MST related symptomology. The efficacy of most of these non-traditional interventions is limited, but the treatments can be advocated as good secondary adjuncts to more traditional therapeutic interventions. Non-traditional interventions ranged from group psychoeducation to guided meditation to self-defense training as well as a program focused on improving social and relationship functioning.

*Efficacy of Warrior Renew Group Therapy for Female Veterans Who Have Experienced Military Sexual Trauma* evaluated the treatment efficacy of the Warrior Renew program for female survivors of MST (Katz, 2016). The group program was delivered over 12 weeks via a manualized protocol and included coping skills and interpersonal factors. Weekly groups included topics such as coping skills, triggers and anxiety, guilt and shame, loss and grief, relationship patterns, effective communication, as well as purposeful living. The program works on helping survivors build trust, safety, and a shared sense of community. Beyond psychoeducation, the program works on interpersonal issues, self and world perceptions, and interpersonal dynamics. Forty-three female veterans began the program, which had a 21% dropout rate. The study found significant decreases in trauma-symptoms such as anxiety, depression, negative cognitions, and PTSD on the PTCI, PCL and BSI measures.

The intervention *Taking Charge: A Pilot Curriculum of Self-hosted Defense and Personal Safety Training for Female Veterans with PTSD Because of Military Sexual Trauma* was based on empirical research that empowering women with training in personal safety, including self-defense, helps women to cope with sexual violence (David, Simpson, & Cotton, 2006). Helping provide a sense of control over personal safety and wellbeing has been labeled the “empowerment effect” (pg. 556). The authors created a pilot project to study the efficacy of this training curriculum. Twelve female veterans with MST related PTSD participated in a 12-week, 3-hour group intervention providing training on “assertiveness, boundary setting, prevention skills, and physical techniques designed to resist assault” (pg. 559). The sessions provided psychoeducation, self-defense training, and group debriefing. Results up to the 6-month follow-up indicated that this program had some general efficacy. PTSD severity was not significantly reduced; however, two of the three PCL symptom clusters (avoidance symptoms and hyperarousal symptoms) showed some reduction, a decrease in scores by 6.2 and 4.5 respectively. These scores are not in the clinically meaningful range. Additionally BDI measures for depression showed a 7.6 reduction from baseline but still remained in the severe depression range. These findings, though not classified as significant, do show positive results and therefore may enhance a multisystem treatment model.

*Case Reports: STAIR for Strengthening Social Support and Relationships Among Veterans With Military Sexual Trauma and PTSD* looked at MST related PTSD and comorbid symptoms, specifically difficulties with social and relationship functioning (Cloitre, Jackson, & Schmidt, 2016). As the researchers clarified traditional interventions for PTSD do not target improving social or relationship functioning. As such, a treatment focusing on these difficulties is necessary. Skills Training in Affective and Interpersonal Regulation (STAIR) helps survivors

of MST related PTSD increase social engagement and provides skills to help with functional relationship building. The STAIR module consists of 8 to 10 sessions of psychoeducation, skills demonstration and practice, and homework assignments. Two case studies were analyzed with both subjects producing clinically meaningful results in PCL score reduction, 31 and 38 points. As previously mentioned, these scores are especially significant seeing as PCL score changes of 10 to 20 points are classified as clinically meaningful (Monson et al., 2008). The study authors saw this intervention as either a stand-alone treatment or as an adjunct to other PTSD therapies. STAIR can also be used in combination with STAIR Narrative Therapy, which provides trauma-focused work proceeding after the interpersonal therapy.

*Delivering Integrative Restoration-Yoga Nidra Meditation (iRest®) to Women with Sexual Trauma at a Veteran's Medical Center: A Pilot Study* explored the efficacy of iRest, a form of guided mindfulness meditation, in reducing MST related symptoms in female veterans (Pence, Katz, Huffman, & Cojucar, 2014). Sixteen subjects were recruited to participate in 90-minute sessions, twice per week for 10 weeks. The iRest protocol consists of somatic therapy components and utilizes sense and memory recall. Subjects are asked to experience a felt sense of security, establish an intention for the practice, and self-determine a desire and direction for their life. Of the ten subject completers PCL scores decreased 16%, posttraumatic negative thinking decreased by 17%, and the depression subscale showed a 25% reduction. Even with positive symptom reduction, to deduce efficacy of this intervention additional research is necessary as the dropout rate was especially high with 33.33% of the subjects leaving the study. The authors concluded that iRest showed promising preliminary results.

*Guided Imagery as a Therapeutic Tool in Post-Traumatic Stress Disorder* was based on guided imagery for trauma (GIFT), a manualized, clinician-assisted, self-directed intervention



(Strauss, Calhoun, & Marx, 2009). The study looked to evaluate this intervention as an effective treatment for female veterans with MST related PTSD. Researchers developed a guided imagery protocol to utilize specifically with PTSD. Subjects collaborated with a clinician on defining problems, targeting, goal setting, and planning using the behavioral technique of guided imagery. The application of GIFT entails using mental images to symbolize aspects of self or goals. Fifteen women were enrolled in the study with 10 subjects completing the entire 12-week intervention. In the completer sample, a significant reduction in PTSD symptoms was found, with a mean symptom change of 21.2 for the CAPS scores and 15.1 for the PCL measures.

### **Campus Sexual Assault**

Literature meeting inclusion requirements for this review of interventions for female survivors of campus sexual assault was limited, which was unforeseen given the high numbers of college students who experience significant sexual trauma. The six identified studies for inclusion have been grouped into cognitive processing therapies, exposure and exposure-like therapies, and cognitive behavioral therapies.

The case study by Wilson and Jones looked at the utilization of *CPT for Rape Victims*, a manualized cognitive processing therapy for survivors of sexual assault. *Therapists as Trauma Survivors: A Case Study Detailing Cognitive Processing Therapy for Rape Victims With a Psychology Graduate Student* reviewed the efficacy of this particular treatment with specific interest in use with mental health professionals who are trauma survivors themselves (Wilson & Jones, 2010). The subject was a female psychology graduate student in her mid-20's who had been sexually assaulted by an acquaintance in the presence of several friends. Subject completed 12 sessions of CPT during 1-hour sessions with 3- and 6- month post treatment assessments. Assessment scores showed a steady decline in severity across the intervention for both

depressive and PTSD symptoms, including dramatic decreases in PTSD subscales for hyperarousal, avoidance, and intrusion. Improvements in symptoms were maintained at both the 3- and 6- month follow-up evaluations post completion of the CPT intervention. Researchers also found that vicarious traumatization decreased while subject's confidence in her capabilities as a mental health professional increased.

The short-term longitudinal investigation *An Examination of the Narrative Written Task: Emotional and Cognitive Mechanisms of Change in Sexual Assault Survivors* looked to examine the written narrative in the context of cognitive processing theory (Sharma-Patel et al., 2009). The study theorized that writing about a traumatic event would allow the writer to organize and process their trauma memory and allow for cognitive integration during the act of writing. The study evaluated the benefits of writing about sexual assault on reducing symptoms of PTSD, depression, and substance abuse. The study was comprised of 24 sexually assaulted women, average age of 19.5, from a large university. Most of the participants reported knowing their perpetrator and none had previously received psychotherapy for their assault. Subjects were asked to write about their sexual assault, specifically about an attempted or completed rape, including how the experience had affected their beliefs about "safety, trust, power, esteem, and intimacy" (pg. 51). Measures were selected to assess variables such as PTSD symptoms, trauma characteristics, depressive symptomology, alcohol use, rape-related cognitions, distress levels during writing task, coping strategies, and social support. Measures were taken at 5 points in the study, approximately one week apart. Using one-way repeated measures the study found statistically and clinically "significant reduction in depressive and alcohol use behaviors but not PTSD" (pg. 3). In fact, PTSD symptom severity measures increased by posttest.

*Cognitive-Behavior Therapy for PTSD in Rape Survivors*, examined the effectiveness of PE, a cognitive behavioral-based therapy, on PTSD in rape survivors (Jaycox et al., 2002). PE involves trauma education, relaxation training, imaginal exposure to the trauma memory, confrontation of trauma reminders, and cognitive restructuring. Treatment consists of 9 to 12 individual sessions, each lasting 90 minutes, as well as homework assignments (in vivo exposure and imaginal exposure). The study centered on a young female college student who was raped by a male student she met at a party. Researchers utilized PE to target symptoms of PTSD as well as the subject's intense feelings of shame, guilt, lack of trust, and low sense of competence. The therapy reduced the client's symptoms of PTSD as well as depression, and improvements were maintained at a one-year, post-intervention follow-up assessment. The subject also reported no hypervigilance or avoidance of thoughts and/or feelings related to the rape. That said, subject still reported some negative symptomology including: re-experiencing of the rape, situational avoidance, insomnia, jumpiness, and, for the first time, feelings of irritability and anger. During imaginal reliving exercise subject reported only moderate decreases in distress (SUDs). Outcomes following the use of PE treatment suggest that initial fear activation to the rape memory and then subsequent fear reduction of that memory are excellent indicators of treatment success (Jaycox, Foa, & Morral, 1998).

*Effects of Clinician- Assisted Emotional Disclosure for Sexual Assault Survivors: A Pilot Study* focused on the efficacy of clinician-assisted emotional disclosure (CAED) on decreasing psychological distress of survivors of sexual assault (Anderson et al., 2010). Subjects were assessed for traumatic stress symptoms and randomly assigned to either a CAED group (n = 15) or a no-treatment control group (n = 13). Study was comprised of 28 female college students who received four, 30-minute sessions of CAED within a span of 10 days. CAED incorporates

emotionally focused therapy (EFT) with emotional disclosure. Per Anderson et al., CAED includes “(a) systematic evocative unfolding of emotional narratives and (b) emotional focusing, for experientially tracking emotions at a moment-to-moment level” (pg. 1118). Measurements were compiled through the Inventory of Interpersonal Problems (IIP), the Outcome Questionnaire-45 (OQ), and the IES. Findings showed no significant decrease between the treatment nor control groups on any outcome variables at termination and at a one-month follow-up; however, the study found several differences at three months posttreatment. The CAED group reported a decrease in interpersonal distress, specifically, “hostility and dependency and reductions in avoidance symptoms associated with posttraumatic stress disorder” (pg. 1114). CAED showed some efficacy for decreasing avoidance, which is closely related to the severity of PTSD. Additionally avoidance is thought to decrease a woman’s ability to perceive danger and possibly lead to sexual revictimization.

The case study by Peterson et al. explored utilizing Eye-Movement Desensitization Reprocessing (EMDR) to reduce PTSD symptoms. *A Study of the Traumatic Effects of Rape and its Treatment Through the Use of EMDR (Eye-Movement Desensitization Reprocessing)* focused on a 20-year-old Caucasian female who had been raped near her college campus (Peterson et al., 2008). A diagnosis of PTSD was assessed during several interviews using criteria in the DSM-IV. The subject completed 120 hours of EMDR and another 110 hours of cognitive therapy over several months. Self reported results included a decrease in most PTSD symptoms as well as increased coping skills to handle any triggers and/or flashbacks, which were reported minimal even five years posttreatment. This study used the subject’s self reported symptom reduction as well as a literature review to reinforce their opinion that EMDR is an effective treatment in reducing PTSD symptoms; however, the case study did not provide pre and post- treatment

measures to scale PTSD symptom reduction. Additionally, the study failed to take into account that the subject had an additional 110 hours of cognitive therapy in addition to EMDR. As such, the findings lack internal validity.

The final study for inclusion in this systematic review used cognitive behavioral therapy (CBT) developed by Dr. Aaron Beck in the 1960's. CBT focuses on identifying a client's illogical and irrational patterns of thinking that are at the root of distressing emotions and dysfunctional behaviors. The goal of CBT is to change this pattern of thinking to change the way the client feels and behaves. The therapy restructures the client's negative thinking and irrational beliefs that cause and maintain symptomology. This helps to change how the client behaves when dealing with their problems (Beck, 1976).

*The From Survivor to Thriver program: RCT of an online therapist-facilitated program for rape-related PTSD* evaluated the effectiveness of an online, interactive therapist-facilitated cognitive-behavioral program for rape-related PTSD (Littleton et al., 2015). The study noted that previous research has found that help-seeking behavior in survivors of sexual assault remains low, with one study finding that only 3% of college rape victims access available campus services. This study found that privacy concerns as well as shame and embarrassment were most often cited as reasons. As such, the development of alternative interventions, like this private and easily accessible online program, is essential. To evaluate the efficacy of such an alternative program, 87 females college students (average age of 22) were randomized to complete either an online interactive program (n = 46) or a psychoeducational self-help website (n = 41). Participants had diagnosis of rape-related PTSD and symptoms were evaluated through the PSS. Both programs showed reduction in interview-assessed PTSD, which was also maintained at a three-month follow-up. Additionally, both programs had self-reported reductions in depression

and anxiety symptoms. The online therapist-facilitated interactive program had superior outcomes with subjects with greater pre-treatment PTSD. Women completing the interactive program also reported high levels of satisfaction with the program and their therapist. Results show that both cognitive-behavioral and psychoeducational programs are effective in reducing rape-related PTSD, with cognitive-behavioral programs demonstrating greater efficacy.

### **Comparative Analysis**

Percent improvement was calculated for the 16 studies that met inclusion criteria for comparative analysis in this study. The study *Case Reports: STAIR for Strengthening Social Support and Relationships Among Veterans With Military Sexual Trauma and PTSD* analyzed two case studies with individual measures. These case studies were evaluated individually as Case Reports: STAIR (#1) and Case Reports: STAIR (#2), for a total of 17 comparative treatment interventions. The outcome measure in the studies included measure of PTSD, depression, and anxiety. Inclusion criteria for comparative studies included a measure for PTSD with pre and post scores. This allowed for a calculation of improvement measure to be used to determine improvement based on a measure of PTSD. Only three studies used measures in addition to a PTSD measure and a majority of the studies used a form of the PCL to assess PTSD symptom severity. The PCL consists of 17 questions that ask participants to indicate how much they have experienced each symptom in the past week or month using a 5 point Likert scale (Wilkins, Lang, & Norman, 2011). The sum of the scores across all items is computed to provide a raw score. The PCL was standardized and found to have a mean of 34.4 (SD = 14.1) for subjects without PTSD and a mean of 63.6 (SD = 14.1) for those with PTSD. The test-retest reliability of the instrument was reported to 0.96 and internal consistency (alpha coefficient) was 0.97.

Six studies provided pre and post- treatment measures of PTSD but did not use the PCL. Those studies used the PTCI, IES, and PSS; however, all these measures have high correlations with the PCL, with the PTCI measuring 14 of the 17 items measured by the PCL (Adkins, Weathers, McDevitt-Murphy, & Daniels, 2008).

Table 2 and 3 includes the studies' raw pre and post- test PTSD measurement scores (unless indicated to be one of the previously discussed exemptions) as well as follow-up scores where applicable (see Appendix for Table 2 and Table 3). The mean score for pre-intervention PTSD symptomology was 64 for MST studies that used PCL as the dependent measure. These scores indicate that subjects overall scored in the clinical range for PTSD symptomology. The pre and post- test scores for campus sexual assault could not be averaged as the studies available for inclusion used different PTSD measures (i.e. PSS and IES).

To quantify the level of change in symptoms of PTSD a percent of change between pre to post- intervention was calculated. Table 4 represents the percentage of change for studies with a MST population, ranking of studies from greatest change to least change (see Appendix for Table 4). Table 5 represents the percent of change for studies with a campus sexual assault population (see Appendix for Table 5). The MST population percent of improvement ranged from 14.6% to 50%. There was a wider range of change in the five studies comparing the campus sexual assault population. One study had a worsening in symptoms with a score of -5.4% and the most improvement of all available studies showed a 90.5% decrease in PTSD symptoms. Additionally, most of the studies for the campus sexual assault population provided follow-up measures, which revealed improvement over time.

The factors measuring the level of intrusiveness of the treatment and level of support available to patients have been included in Table 6 for the MST population and Table 7 for the

campus sexual assault population (see Appendix for Table 6 and Table 7). Correlation coefficients were calculated to assess the possible relationship between the degree of intrusiveness of the treatment and the success of the treatment. For the MST population, a correlation coefficient of  $r = -0.21$  ( $df = 10$ ),  $p > .05$  was found and for the campus sexual assault population a correlation coefficient of  $r = 0.69$  ( $df = 3$ ),  $p > .05$  was found. This indicates no significant relationship between intrusiveness of treatment and the change in symptoms. Similarly, the correlation between level of support provided to subjects and the level of change in symptoms was calculated. For the MST population,  $r = 0.057$  ( $df = 10$ )  $p > .05$ . For the campus sexual assault population  $r = 0.805$  ( $df = 3$ )  $p > .05$  was determined. This indicates no significant relationship between level of support and effectiveness of treatment.

Since all the studies included more than one modality of treatment, a table summarizing the effectiveness of treatment as represented by percentage of change from pre to post-treatment was comprised. See Table 8 for the MST population and Table 9 for the campus sexual assault population (see Appendix for Table 8 and Table 9). Due to the varying treatment modalities between all the studies a direct comparison was impossible. In response to this, the study investigator created descriptors (intrusiveness and supportive) for the studies to be compared by.

## **Discussion**

### **Summary**

With the high occurrence of sexual assault on female women in the military and on college campuses, knowing the method and effectiveness of treatment interventions is imperative. Survivors who seek help deserve a treatment conducive to the individual's experience and presenting symptoms. This systematic review and comparative analysis looked to provide insight into what treatments provide the best efficacy within these two populations and



offer some guidance on best practices for clinicians working with survivors of MST and/or campus sexual assault.

The questions this study looked to answer were “Which therapeutic interventions prove most effective with military sexual trauma survivors or with campus sexual assault survivors? Is it the same treatment or do the two groups respond to different treatments?”

Studies of female survivors of MST showed the greatest percentage in PTSD symptom improvement utilizing STAIR, CPT, and ART. The two case studies that utilized STAIR showed a 50% and 40.3% improvement in their symptoms. STAIR was low ranking in intrusiveness measures, garnering a 1 (out of 5) from all three raters. STAIR also scored high in level of support with study raters giving it a 4 (out of 5). STAIR is a not an exposure heavy therapy instead focusing on increasing social engagement and relationship skills while the patient partners in a collaborate relationship with their therapist.

CPT specifically utilized in a residential treatment center showed a 41% improvement in PTSD symptoms. CPT has a higher intrusiveness level; however, coupled with this setting it was moderately rated as a level 3. This setting was also agreed by all raters to have a high level of support during treatment, with a rating of 5. Residential treatment facilities give patients the opportunity to have continuous access to clinicians and support staff while in treatment. It should be noted, that while this study showed overall efficacy within the subject population two subjects had an increase in their PCL scores from pre to post test. One subject who showed a marked increase in their PCL scores, 8 points, reported having anxiety about returning to their normal life after leaving the safety and security of the residential facility (Zappert et al., 2008). This is a fair concern about treatment efficacies performed in a controlled environment, such as a residential treatment center. This study did not provide any follow-up measures to track

symptoms post treatment so it is difficult to confirm that this intervention produced prolonged changes once the participants were back in the 'real world' around their normal stressors and triggers.

Another study also utilized CPT in a residential treatment center, though the setting appeared to be more for convenience rather than a pre-determined factor. This study showed a 30.6% improvement in scores for participants with MST. The non-MST control group also showed efficacy of treatment with an improvement of 31.85%. This demonstrates either the effectiveness of CPT regardless of MST status or the effectiveness of inpatient treatment for people suffering with PTSD. For this study the raters score the intrusiveness level of the intervention at a 2 with level of support at a 5, as it was conducted in a residential treatment facility.

ART also demonstrated significant change in PCL scores with a 35.9% improvement. Though the study defined ART as an exposure-based therapy, on closer inspection of the intervention the intrusiveness score rate was 1 with level of support at a 2. The rating was deduced by the study's description of the intervention, which read much like the procedures for EMDR. The support score was due to the procedural aspects of the intervention. Additionally, the intervention does not emphasize rapport and relationship building between therapist and subject.

The three studies that showed the most marked improvement in treating PTSD symptoms for female survivors of campus sexual assault utilized CPT, an online cognitive-behavioral program, or PE. The study that showed the highest percentage of improvement in PTSD symptoms utilized CPT with a female psychology graduate student. IES scores showed a 90.5% improvement. The CPT intervention in this study was rated 3 for intrusiveness and 4 for level of

support. This high level of measured improvement may have been in large part to the willingness of the subject who was a counselor-in-training and extremely motivated to receive help and work the intervention.

The online cognitive-behavioral program, Survivor to Thriver, showed an improvement on the PSS of 52.7%. This non-traditional intervention uses online, interactive treatment modules geared towards rape-related PTSD. The interrater score for intrusiveness was 0, as none of the program modules utilized any exposure techniques; however, the level of support was also low with a rating of 1. Though the study boasted that the program was therapist-facilitated the subjects had few, brief encounters with therapists and all contact was kept online and with no one-on-one contact to establish trust or build a rapport.

The use of PE showed efficacy with treating campus sexual assault with one study generating a 38.5% improvement in PSS measures. The case study showed efficacy for both PTSD as well as reducing depressive symptoms. Rater scoring for intervention intrusiveness was 4 with a level of support score of 3. It is important when reviewing the efficacy of PE in this study to note that one of the primary reasons the subject originally presented to treatment was to help with relationship issues and problems with intimacy. Though PE was effective in addressing many of the subject's symptoms it did not provide improvement in these areas and the subject had to return to therapy for an additional eight sessions using a CBT format to focus on interpersonal problems and intimacy issues.

It is difficult to compare the two populations, MST and campus sexual assault, and treatment efficacy with the current available literature. This is due in a large part to poor study design. Few, if any, of the studies utilized just one therapy and/or intervention causing the results to be muddled. For instance, the researcher for *A Study of the Traumatic Effects of Rape and its*

*Treatment Through the Use of EMDR (Eye-Movement Desensitization Reprocessing)* focused their entire argument for the efficacy of EMDR on one case study in which the subject received 120 hours of EMDR; however, though the study mentioned it, the research failed to take into account the 110 hours of cognitive therapy the subject additionally received. This additional therapy calls into question the entire study and its conclusions on EMDR treatment efficacy. Other studies failed to take into consideration the setting where the treatment was administered. As previously mentioned, four of the studies on MST related PTSD were conducted in a residential treatment facility; however, only two of those studies took the setting into consideration as part of the overall treatment. All four studies failed to consider all the additional treatment the subjects were receiving as part of the residential program when looking at outcome measures, instead focusing on their study's particular intervention. Additionally, most studies that claimed to utilize a specific therapeutic intervention had their own judgments on proper procedural technique, even in those studies that utilized a manualized intervention such as CPT or PE. In fact, only one study ensured that the manualized therapies they used were being accurately administered by removing therapists who demonstrated poor treatment fidelity.

### **Limitation**

This study, and its collected data, was limited by the research available on campus sexual assault. Given the high prevalence of sexual assault on university and college campuses it would seem that more attention would have been given to studying this population in regards to mental health interventions and treatment outcomes. Most of the studies found for inclusion did not specifically focus on the college student or the campus environment, making their inclusion in this study happenstance. Most of the studies were looking at treatment for rape-related PTSD and had available access to students for their research. This may seem inconsequential but it does

make a difference when a study is focused on a specific population dealing with a specific experience.

Studies also frequently failed to meet inclusion criteria for not concentrating on a female population. This was especially relevant when searching MST literature, which would often have a large female participant population but then would include a handful of male participants. Men are survivors of sexual assault and it is important to study that subpopulation as well; however, homogeneity of gender shows important differences in the psychological implication of such traumas, especially sexual assault traumas. The social construct surrounding the two genders lends to different responses.

### **Conclusion**

The studies included herein were almost all effective in improving PTSD symptomology, even those that are experimental. No one intervention was significantly more effective than another, leading to the conclusion that receiving any treatment can have some positive efficacy. That being said, treatments that offered multiple modalities were especially effective and residential treatment programs showed positive results. Additionally, results showed that non-exposure interventions were just as effective as exposure-based treatments in reducing PTSD. This is useful as we know exposure-based treatments have a high dropout rate.

There is also considerable debate about the use of PTSD as the primary diagnosis for survivors of sexual assault. It is argued that PTSD “overemphasizes the survivor’s role in response to sexual trauma” as well as fails to take into consideration social and cultural factors (Yuan, Koss, & Stone, 2006). It was part of the goal of this study to look into the efficacy of treatment beyond PTSD measures and improvements; however, the studies found for inclusion almost all emphasized PTSD. It is significant that the treatment found most effective with MST

was STAIR, which is a non-exposure intervention that works on social engagement and relationship building. As this and other studies have found, CPT and PE are effective at reducing PTSD but additional symptoms from rape-related trauma must be taken into consideration. Resick and Schnicke (1992) note that rape survivors experience depression, poor self-esteem, and interpersonal difficulties that may not be fully addressed through exposure therapy. Treatments that focus on PTSD may reduce such symptoms as hypervigilance, nightmares, avoidance, and flashbacks but they are not as effective at treating social and relationship issues. Creating a whole-person strategy that uses multiple therapeutic approaches with adjunct interventions may allow for a more comprehensive treatment. This may help survivors improve not only their diagnosis and symptoms (emotional and physical) but also intellectually, socially, and spiritually.

Additional research is needed. There is a plethora of research on rape prevention for military personnel and college students but there is very limited data on treatment post assault. Studies are needed to address the full spectrum of sexual trauma symptoms as well as sexual assault within these two populations, female survivors of MST and campus sexual assault. There is virtually no empirical research on the most effective interventions to use with college students who have been sexually assaulted. It is imperative that additional research is conducted for both MST and campus sexual assault to fully answer the research questions posed above and to advocate for better treatment practice on both military and college campuses.

## Appendix

Table 1

## Characteristics of Included Studies

Study	Author & Date	Subject Criteria	N Assigned	Mean Age	Design	Research Data	Study Timeframe	Dropout Rate
<i>Effectiveness of Cognitive Processing Therapy for Male and Female U.S. Veterans with and without Military Sexual Trauma</i>	Voelkel, E., Pukay-Martin, N., Walter, K., & Chard, K., 2015	MST PTSD	208	47.24	Pre-Post	Quantitative	7-week Residential	During: 8.65% Post: 18.75%
<i>Cognitive Processing Therapy for Posttraumatic Stress Disorder in a Residential Treatment Setting</i>	Zappert, L. & Westrup, D., 2008	PTSD Female Veteran	18	44.61	RCT Pre-Post	Quantitative	60-day Residential	None
<i>Residential PTSD Treatment for Female Veterans with Military Sexual Trauma: Does a History of Childhood Sexual Abuse Influence Outcome?</i>	Walter, K., Buckley, A., Simpson, J. & Chard, K., 2014	MST-related PTSD	49	46.7	Pre-Post	Quantitative	7-week Residential	10.2%
<i>Treating PTSD and Disordered Eating in the Wake of Military Sexual Trauma: A Case Study</i>	Mott, J., Menefee, D. & Leopoulos, W., 2012	MST PTSD ED	1	28	Pre-Post Single Subject	Quantitative	25-day Residential	None
<i>Effects of Cognitive Processing Therapy on PTSD-Related Negative Cognitions in Veterans With Military Sexual Trauma</i>	Holliday, R., Link-Malcolm, J., Morris, E. & Suri's, A., 2014	MST-related PTSD	45	44.91	Pre-Post	Quantitative	12-week intervention Total: 6 months	None
<i>Comparison of Accelerated Resolution Therapy (ART) for Treatment of Symptoms of PTSD and Sexual Trauma Between Civilian and Military Adults</i>	Kip, K., Hernandez, D., Shuman, A., Witt, A., Diamond, D., Davis, S., Kip, R., Abhayakumar, A., Wittenberg, T., Girling, S., Witt, S., &	Sexual Assault-Related PTSD	6	47.3	Pre-Post	Quantitative	2-week intervention Total: 3 months	During: None Post: 16.67%

	Rosenzweig, L., 2015							
<i>An Evolving Integrative Treatment Program for Military Sexual Trauma (MST) and One Veteran's Experience</i>	Ferdinand, L., Kelly, U., Skelton, K., Stephens, K. & Bradley, B., 2011	MST PTSD Depression	1	40's	Single Subject	Quantitative & Qualitative	Unknown 6 month follow-up	None
<i>Acceptance and Commitment Therapy in the Treatment of Depression Related to Military Sexual Trauma in a Woman Veteran: A Case Study</i>	Hiraoka, R., Cook, A., Bivona, J., Meyer, E. & Morissette, S., 2016	MST-related Depression	1	21	Single Subject	Quantitative & Qualitative	7-month intervention	None
<i>Efficacy of Warrior Renew Group Therapy for Female Veterans Who Have Experienced Military Sexual Trauma</i>	Katz, L., 2016	MST PTSD	43	47.44	Pre-Post	Quantitative	12-week intervention	21%
<i>Taking Charge: A Pilot Curriculum of Self-hosted Defense and Personal Safety Training for Female Veterans with PTSD Because of Military Sexual Trauma</i>	David, W., Simpson, T. & Cotton, A., 2006	MST PTSD	12	48.3	Pre-Post	Quantitative	36-hour intervention Total: 6 months	16.67%
<i>Case Reports: STAIR for Strengthening Social Support and Relationships Among Veterans With Military Sexual Trauma and PTSD</i>	Cloitre, M., Jackson, C. & Schmidt, J., 2016	MST PTSD	2	28 & 35	Pre-Post Single Subject	Quantitative & Qualitative	10-session intervention	None
<i>Delivering Integrative Restoration-Yoga Nidra Meditation (iRest®) to Women with Sexual Trauma at a Veteran's Medical Center: A Pilot Study</i>	Pence, P., Katz, L., Huffman, C. & Cojucar, G., 2014	MST Sexual Trauma	15	56	Pre-Post	Quantitative	19-session intervention Total: 10-weeks	33.33%
<i>Guided Imagery as a Therapeutic Tool in Post-Traumatic Stress Disorder</i>	Strauss, J., Calhoun, P. & Marx, C., 2009	MST-related PTSD	15	Unkn wn	RCT Pre-Post	Quantitative	12-week intervention	33.33%



<i>Therapists as Trauma Survivors: A Case Study Detailing Cognitive Processing Therapy for Rape Victims With a Psychology Graduate Student</i>	Wilson, L. & Jones, R., 2010	Sexual Assault (Acquaintance rape) Depression PTSD Mental Health Professional	1	Mid-20's	Pre-Post Single Subject	Quantitative	12 sessions intervention Total: 6 months	None
<i>An Examination of the Narrative Written Task: Emotional and Cognitive Mechanisms of Change in Sexual Assault Survivors</i>	Sharma-Patel, K., 2009	Sexual Assault (attempted or completed rape) PTSD, Depression, Substance Abuse	24	19.5	Pre-Post	Quantitative	3-week intervention	20.83%
<i>Cognitive-Behavior Therapy for PTSD in Rape Survivors</i>	Jaycox, L., Zoellner, L. & Foa, E., 2002	Rape (Date rape) PTSD	1	25	Pre-Post Single Subject	Quantitative	12-week intervention Total: 12 months	None
<i>Effects of Clinician-Assisted Emotional Disclosure for Sexual Assault Survivors: A Pilot Study</i>	Anderson, T., Guajardo, J., Luthra, R. & Edwards, K., 2010	Sexual Assault (Coerced or forced penetration) High Psych. Distress	28	19	Pre-Post	Quantitative	10-day intervention Total: 3 months	During: 7.14% Follow-ups 1-month: 39.29% 3-month: 53.57%
<i>A Study of the Traumatic Effects of Rape and its Treatment Through the Use of EMDR</i>	Peterson, R., 2008	Rape (Stranger rape) PTSD	1	20	Single Subject	Qualitative	120-hour intervention Total: 14 weeks	None
<i>The From Survivor to Thriver program: RCT of an online therapist-facilitated program for rape-related PTSD</i>	Littleton, H., Grills, A., Kline, K., Schoemann, A. & Dodd, J., 2016	Rape (Completed) Rape-related PTSD	87	22	Pre-Post	Quantitative	14-week intervention Total: 3 months	During: 16.09% Post: 50.57%

**Table 2**

Treatment Effectiveness for MST Studies – Change in PTSD Scores from Pre-Post Intervention

Study	N	Baseline	Change	Post	3 month	6 month
Case Reports: STAIR (# 2)	1	77	31	46	-	-
Case Reports: STAIR (# 1)	1	76	38	38	-	-
Cognitive Processing Therapy for PTSD in a RTC	18	43.89	18	25.89	-	-
Comparison of ART for Treatment	8	59	21.2	37.8	-	-

Effectiveness of CPT for Male and Female U.S Veterans	128	64.33	19.71	44.62	-	-
Efficacy of Warrior Renew Group Therapy	10	59.95	14.42	45.53	-	-
Effects of CPT on PTSD for Negative Cognitions	32	153.88*	37.02	116.86*		114.86*
An Evolving Integrative Treatment for MST	1	67	16	51	-	-
Taking Charge: a Pilot Curriculum	9	74.9	17.3	57.6	66.6	62.1
Residential PTSD for Female Veterans with MST (no Childhood Sexual Assault)	49	64.28	13.9	50.38	-	-
Delivering Integrative Restoration	10	56.5	9.3	47.2	-	-
Treating PTSD and Disordered Eating	1	61	9	52	-	-

\*"Effects of CPT on Negative Cognitions" scoring based on PTCI

**Table 3**

Treatment Effectiveness for Campus Sexual Assault Studies  
Change in PTSD Scores Pre-Post Intervention

Study	N	Pre	Change	Post	3 month	6 month
Therapists as Trauma Survivors: A Case Study	1	42*	38	4	4	4
The From Survivor to Thriver Program	38	23.7**	12.5	11.2	7.9	-
CBT Therapy for PTSD in Rape Survivors	1	26**	10	16	7	6
Effects of Clinician Assisted Emotional Disclosure for Sexual Assault Survivors: A Pilot Study	28	7.17*	.76	6.41	4.6	-
An Examination of the Narrative Written Task: Emotional and Cognitive Mechanisms of Change	19	9.79*	-0.53	10.32	-	-

\*Results measured in IES

\*\*Results measured in PSS

**Table 4**

## Treatment Effectiveness for MST - Percent Change Pre-Post Intervention

Study	N	Post-Treatment Improvement %	3 month	6 month
Case Reports: STAIR (# 2)	1	50.0	-	-
Case Reports: STAIR (# 1)	1	40.3	-	-
Cognitive Processing Therapy for PTSD in a RTC	18	41.0	-	-
Comparison of ART for Treatment	8	35.9	-	-
Effectiveness of CPT for Male and Female U.S Veterans	128	30.6	-	-
Efficacy of Warrior Renew Group Therapy	10	24	-	-
Effects of CPT on PTSD for Negative Cognitions	32	24		25
An Evolving Integrative Treatment for MST	1	23.9	-	-
Taking Charge: a Pilot Curriculum	9	23.1	11.1	17.1
Residential PTSD for Female Veterans with MST	49	21.6	-	-
Delivering Integrative Restoration	10	16.5	-	-
Treating PTSD and Disordered Eating	1	14.6	-	-

**Table 5**

## Treatment Effectiveness for Campus Sexual Assault - Percent Change Pre-Post Intervention

Study	N	Post-Treatment Improvement %	3 month	6 month
Therapists as Trauma Survivors: A Case Study	1	90.5	90.5	90.5
The From Survivor to Thriver Program	38	52.7	66.7	-
CBT Therapy for PTSD in Rape Survivors	1	38.5	73.0	76.9
Effects of Clinician Assisted Emotional Disclosure for Sexual Assault Survivors: A Pilot Study	28	10.6	22.7	35.8
An Examination of the Narrative Written Task: Emotional and Cognitive Mechanisms of Change	19	-5.4	-	-

**Table 6**

## Change in PTSD Symptoms for MST - Levels of Intrusiveness &amp; Support

Study	N	Post-Treatment Improvement %	Level of Intervention Intrusiveness	Level of Support During Treatment
Case Reports: STAIR (# 2)	1	50.0	1	4
Case Reports: STAIR (#1)	1	40.3	1	4
Cognitive Processing Therapy for PTSD in a RTC	18	41.0	3	5
Comparison of ART for Treatment	8	35.9	1	2
Effectiveness of CPT for Male and Female U.S Veterans	128	30.6	2	5
Efficacy of Warrior Renew Group Therapy	10	24	0	5
Effects of CPT on PTSD for Negative Cognitions	32	24	5	3
An Evolving Integrative Treatment for MST	1	23.9	1	3
Taking Charge: a Pilot Curriculum	9	23.1	0	4
Residential PTSD for Female Veterans with MST	49	21.6	4	5
Delivering Integrative Restoration	10	16.5	0	2
Treating PTSD and Disordered Eating	1	14.6	5	5

**Table 7**

## Change in PTSD Symptoms for Campus Sexual Assault - Levels of Intrusiveness &amp; Support

Study	N	Post-Treatment Improvement %	Level of Intervention Intrusiveness	Level of Support During Treatment
Therapists as Trauma Survivors: A Case Study	1	90.5	3	4
The From Survivor to Thriver Program	38	52.7	0	1
CBT Therapy for PTSD in Rape Survivors	1	38.5	4	3
Effects of Clinician Assisted Emotional Disclosure for Sexual Assault Survivors: A Pilot Study	28	10.6	5	2
An Examination of the Narrative Written Task: Emotional and Cognitive Mechanisms of Change	19	-5.4	1	2

**Table 8**

## MST Studies - Percent of Change in PTSD Symptoms with Intervention Type

Study	N	%	Type of Intervention
Case Reports: STAIR (# 2)	1	50.0	PsyEd, IST, Roleplay, CBT, Narrative Therapy
Case Reports: STAIR (# 1)	1	40.3	PsyEd, IST, Roleplay, CBT, Narrative Therapy
Cognitive Processing Therapy for PTSD in a RTC	18	41.0	CPT, PE, PsyEd, IST
Comparison of ART for Treatment	8	35.9	ART (Accelerated Resolution Therapy: bilateral eye movement, cognitive restructuring, relaxation techniques, meditation)
Effectiveness of CPT for Male and Female U.S Veterans	128	30.6	CPT, PsyEd, IST, DBT
Efficacy of Warrior Renew Group Therapy	10	24	PsyEd, IST, Cognitive Restructuring
Effects of CPT on PTSD for Negative Cognitions	32	24	CPT, PE
An Evolving Integrative Treatment for MST	1	23.9	CPT, PsyEd, IST, Emotional Regulation Skills
Taking Charge: a Pilot Curriculum	9	23.1	PsyEd, IST, self-defense
Residential PTSD for Female Veterans with MST	49	21.6	CPT, PE, PsyEd, IST, DBT
Delivering Integrative Restoration	10	16.5	Yoga, iRest (relaxation, meditation)
Treating PTSD and Disordered Eating	1	14.6	CPT, PE, PsyEd, IST, DBT, 'Wiser' Program

PsyEd = Psychoeducation, IST= Interpersonal Skills Training

DBT = Dialectical Behavioral Therapy

**Table 9**

## Campus Sexual Assault Studies - Percent of Change in PTSD Symptoms with Intervention Type

Study	N	%	Type of Intervention
Therapists as Trauma Survivors: A Case Study	1	90.5	CPT, PE
The From Survivor to Thriver Program	38	52.7	PsyEd, CBT, relaxation techniques
CBT Therapy for PTSD in Rape Survivors	1	38.5	PE, CBT, Cognitive Restructuring
Effects of Clinician Assisted Emotional Disclosure for Sexual Assault Survivors: A Pilot Study	28	10.6	PE, EFT
An Examination of the Narrative Written Task: Emotional and Cognitive Mechanisms of Change	19	-5.4	CPT, Narrative Therapy

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