MENTAL HEALTH TREATMENTS FOR ADOLESCENT/ADULT VICTIMS OF SEXUAL ASSAULT:

Systematic Literature Review and Recommendations

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TABLE OF CONTENTS

02 Abstract
03 Background
04 Neurobiology of Trauma
05 Responses to Sexual Assault
Acute Stress Disorder (ASD) and Posttraumatic Stress Disorder (PTSD)
06 Treatment Overview
Male, Minority and LGBTQ Victims
07 Prior Systematic Literature Review on Evidence-Based Therapies Post-Sexual Assault
Current Systematic Literature Search
08 Methodology
Inclusion/Exclusion Criteria
10 Systematic Review Results
Participants
Male, Minority and LGBTQ Study Participants
11 Mode of Therapy Delivery
Outcome Measures
12 Characteristics of Therapeutic Interventions
13 Recommended Treatments for Systematic Review
14 Published Clinical Practice Guidelines
Treatment Recommendations
Psychotherapy
15 Acceptance and Commitment Therapy (ACT)
Brief Eclectic Psychotherapy (BEP)
Cognitive Behavioral Therapy (CBT)
16 Trauma-focused Cognitive Behavioral Therapy (TF-CBT)
Cognitive Processing Therapy (CPT)
Control Mastery Therapy
17 Dialectical Behavior Therapy (DBT)
DBT with Prolonged Exposure (DBT-PE)
Emotional Disclosure Therapy (EDT)
Eye Movement Desensitization and Reprocessing (EMDR)
Exposure Response Prevention (ERP)
Feminist Therapy
18 Hypnotherapy
Image Rehearsal Therapy
Interpersonal Psychotherapy (IPT)

TABLE OF CONTENTS

Narrative Exposure Therapy (NET)
Present Centered Therapy (PCT)
19 Prolonged Exposure Therapy (PE)
Psychodynamic Psychotherapy
Psychotherapy
Seeking Safety
20 Skills Training in Affective and Interpersonal Regulation and Narrative Therapy
Supportive Psychotherapy
Complementary Treatments
Aerobic Exercise
21 Art, Drama, and Music Therapy
Equine-Assisted Therapy
MAP
Meditation
22 Trauma Sensitive Yoga
Pharmacological Therapies
23 Antidepressants
Atypical Antipsychotics
Benzodiazepines
Mood Stabilizers
Non-benzodiazepines
Sleep Aids
24 Other Classes: Hydrocortisone, Ketamine and Herbal Products
25 Therapy in Conjunction with Medications
MDMA with Assisted Therapy
Recommendatios on Psychotropic Medications
Summary on Recommendations
26 Discussion and Recommendations
27 Conclusion

Appendix A
Appendix B
Appendix C
References

ABSTRACT

An extensive literature review was conducted of clinical guidelines and peer-reviewed journal articles related to mental health treatments for adolescent (age 14 and over) and adult victims of sexual assault published between January 2006 to September 2019 to provide recommendations for evidence-based interventions. For treatments lacking high-quality evidence specific to adolescent and adult sexual assault victims, the literature for interventions for trauma and posttraumatic stress disorder (PTSD), a common result of sexual assault, were utilized to provide additional information to guide recommendations.

The objective for this review was to provide Utah Office for Victims of Crime an overview of treatments for adolescent and adult sexual assault victims, serving as a guide for the agency on evidence-based treatment modalities for sexual assault trauma and PTSD. The documentation is clear that when victims receive effective treatment after a traumatic event, long-term negative impacts are mitigated, and individual recovery promoted. Our communities benefit as victims achieve health and recovery.

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BACKGROUND

Sexual violence is prevalent in our community and a major public health problem impacting thousands of Utah residents every year. According to the U.S. Department of Justice (USDOJ) Office on Violence Against Women (n.d.), the term "sexual assault" (SA) means any nonconsensual sexual act proscribed by Federal, tribal, or State law, including when the victim lacks capacity to consent. The definition of rape was updated in 2012 to state "The penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex organ of another person, without the consent of the victim." (USDOJ).

The USDOJ (2019) reported the rate of rape or SA increased from 1.4 victimizations per 1,000 persons to 2.7 per 1,000 in 2018. According to the U.S. Federal Bureau of Investigation (FBI) Uniform Crime Report (UCR), rapes reported to law enforcement was 55.5 per 100,000 (2018). Between 2014 and 2018, the Utah adult rape rate increased 12.1% (U.S. Department of Justice, 2018). Per FBI UCR statistics, Utah has reported higher rates of rape than the national average since 1991 (USDOJ, 2018).

Crime statistics do not reveal the extent of actual SA prevalence in the U.S. and Utah. SA is the most under-reported crime in the U.S., with only 25% reported to police (Morgan *&* Oudekerk, 2019). Mitchell and Peterson (2007) reported that in Utah 11.8% of SA victims reported to police and only 12.7% sought medical care.

SA trauma frequently results in short-term and long-term psychological and physical health consequences (Valentine, Ledray, Downing, *&* Frazier, 2019). Potential negative psychological consequences include acute stress disorder, depression, anxiety, post-traumatic stress disorder (PTSD), and interpersonal relationship difficulties. Increased substance abuse and eating disordered behaviors have also been linked to SA trauma (Valentine et al., 2019).

Negative physical health outcomes include greater severity and frequency of general health symptoms and medical conditions; such as pain, cardio-respiratory, and gastrointestinal health symptoms (Pacella et al., 2013). Increased substance abuse and eating disordered behaviors have also been linked to SA trauma (Valentine et al., 2019). Negative physical health outcomes include greater severity and frequency of general health symptoms and medical conditions; such as pain, cardio-respiratory, and gastrointestinal health symptoms (Pacella et al., 2013).

The crime of SA negatively impacts society as well as individuals. Communities carry the criminal justice burden of investigating and prosecuting the crimes as well as the burden to promote healing and recovery for survivors. Women who have experienced SA or intimate partner violence are more likely to become unemployed, divorce, suffer serious illness, and fall into poverty level (Monnier, Resnick, Kilpatrick, *&* Seals, 2002; Byrne, Resnick, Kilpatrick, Best, *&* Saunders, 1999). These individual tolls have financial impacts on society. In a national study, Peterson and colleagues (2017) reported that the lifetime cost of rape per victim was $122,461 with a U.S. economic burden of $3.1 trillion dollars over the lifetime of victims. A study by the Utah Department of Health found that in 2011 sexual violence costs totaled almost 5 billion dollars, approximately $1,700 per Utah resident per year (Cowan, 2019).

To reduce individual and societal consequences and costs of SA, evidence-based therapies and strategies can be implemented to prevent negative long-term psychological outcomes. The purpose of this report is to present the current state of research literature on mental health treatment options for adolescents (14 years and older) and adults following sexual assault and provide recommendations of evidence-based treatment modalities. When psychological and pharmacological interventions are implemented after a traumatic event, such as SA, recovery is promoted and long-term negative psychological impacts, specifically PTSD, are prevented (Linares et al., 2017).

NEUROBIOLOGY OF TRAUMA

An overview of the neurobiology of trauma illustrates how SA affects the body and behavior. When suddenly confronted by a threat, the body responds in predictable ways to promote survival. Neurobiological responses inhibit the brain's executive functioning. The amygdala, a primitive yet crucial brain structure, is activated resulting in a cascade of neurochemical reactions results in the "fight, flight or freeze" reaction. The "freeze" element of this response explains why many victims do not fight or run away - their neurological responses renders them immobilized (see Figure 1) (Downing, Valentine, & Gaffney, 2019).

Persons who have experienced sexual violence have a wide range of psychological and physical responses, from transient, non-debilitating reactions, to symptoms that meet the Diagnostic and Statistical Manual of Mental Disorders -5th edition (DSM-5) criteria for acute stress disorder (ASD) or post-traumatic stress disorder (PTSD) (American Psychiatric Association [APA], 2013). Symptoms of PTSD include the following: intrusive, distressing memories of the traumatic event; flashbacks; nightmares, dissociative reactions, intense distress and physiological reactions to triggers; inability to experience positive emotions; avoidance of reminders of the trauma; irritability; sleep disturbance; hypervigilance; and exaggerated startle reflexes (APA, 2013). These symptoms indicate an autonomic nervous system under extreme stress, with concomitant cascades of neurohormones such as cortisol, which inhibits immune system function (Downing et al., 2019). Decreased immune function predisposes the victim to a variety of physical illnesses, in addition to the psychological sequela listed in the DSM-5. Intentional trauma has a greater association with PTSD than unintentional/non traumatic events (Kessler et al., 2014). Assaultive violence, such as SA, is more likely to result in PTSD than other types of traumas (Breslau, 2012).

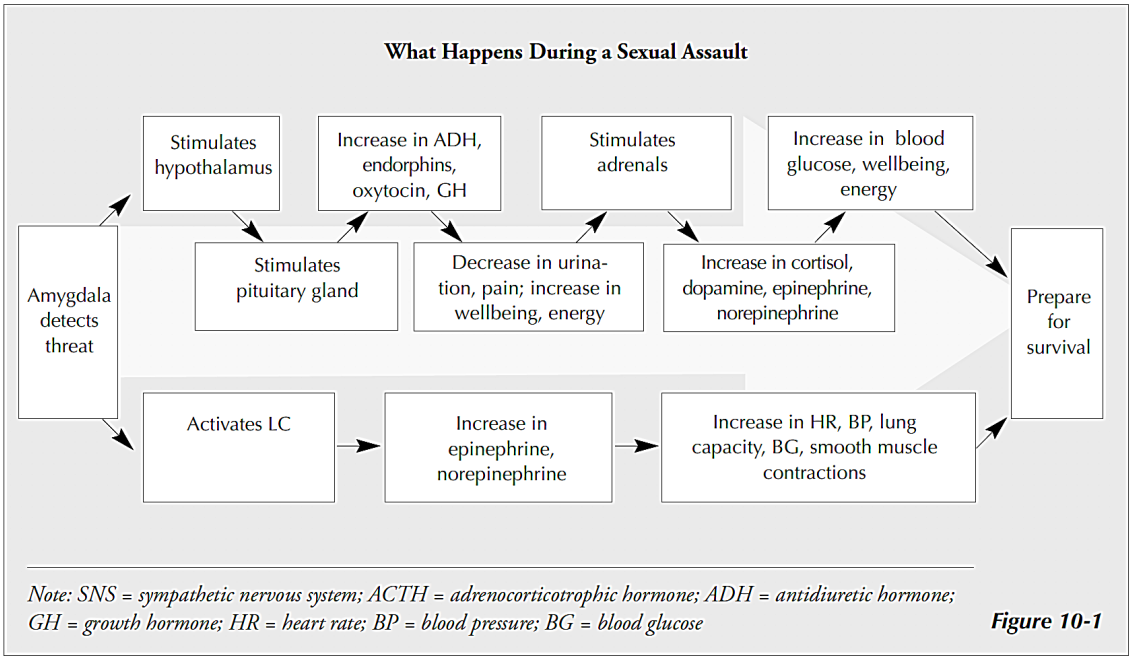


Figure 10-1. *Neurobiology of trauma. An overview of the neurological processes that occur when the amygdala detects threat. The top line of boxes indicates the responses triggered by the hypothalamus (HPA axis) and the bottom line indicates responses triggered by the locus coeruleus (sympathetic nervous system).*

Figure 1: Neurobiology of trauma. An overview of the neurological processes that occur when the amygdala detects threat. The top line of boxes indicates the responses triggered by the hypothalamus (HPA axis) and the bottom line indicates responses triggered by the locus coeruleus (sympathetic nervous system) (Downing, Valentine, & Gaffney, 2019). Permission for inclusion from STM Learning, Inc.

RESPONSES TO SEXUAL ASSAULT

After SA, some individuals may cope by internalizing (e.g., anxiety, depression, and/or social adjustment problems) and/or externalizing (e.g., drug abuse, self-harm, risky sexual behaviors, disordered eating) (Combs et al. 2014; Valentine et al., 2019). In addition to PTSD, suicidality, substance abuse, poor role performance, physical medical conditions, and early onset of mental illness have also been identified as negative consequences from SA (Angelone et al., 2017, Brooker & Tocque, 2016; Carey et al., 2018; Dworkin et al., 2017; Jeon et al., 2014; Sachs-Ericcson et al., 2014; Santaularia et al., 2014). Many victims suffer from a variety of these sequala, with resultant negative biopsychosocial effects (Valentine et al., 2019), including increased suicidality. SA victims have an increased lifetime risk of suicide attempts compared to the general population (Brooker et al., 2016; Dworkin et al., 2017; Jeon et al., 2014). SA victims should be monitored closely for suicidality. Importantly, one way to reduce the lifetime risk of suicide is to provide effective treatments after SA.

The connection between SA and subsequent mental illness can persist throughout a person's lifespan. Sachs-Ericcson et al. (2014) surveyed older women (57 to 85 years old), sexually assaulted decades earlier, and found they continued to struggle with anxiety, depression and substance abuse. These findings are alarming and highlight the importance of treating ASD post-assault to reduce PTSD symptoms and life-long individual dysfunction.

ACUTE STRESS DISORDER (ASD) AND POSTTRAUMATIC STRESS DISORDER (PTSD)

According to the DSM-5 (APA, 2013), symptom criteria for ASD and PTSD are very similar, and both require early intervention and treatment for best recovery outcomes. ASD occurs immediately after the trauma with symptoms lasting from a few days up to one month. Between 20 to 50 percent of victims develop ASD, with symptoms of reliving the trauma, flashbacks or nightmares. Additionally, they may feel numb or detached from themselves, resulting in major distress, and social, occupational, and interpersonal dysfunction (APA, 2013). Approximately half of victims with ASD go on to develop PTSD (APA, 2013). Early intervention with ASD is recommended to reduce the impact of the trauma and prevent development of PTSD, a long-term negative outcome. PTSD can be diagnosed after one month or longer of ASD symptoms. Often ASD is a precursor to PTSD, but PTSD symptoms can take months or years to develop from the initial trauma and vary in severity. The prevalence of ASD after SA is quite high. One study found a prevalence rate of 94% in rape victims meeting the criteria for ASD two weeks after their assault (Rothbaum et al., 1992).

Valentine et al. (2019) found that SA victims generally report more symptoms of PTSD than do victims of other traumas. Steenkemp et al. (2012) evaluated PTSD symptoms prevalence in female adult SA survivors and found that 78% had PTSD symptoms at 1 month, 67% at 2 months, 48% at 3 months, and 41% at 4 months. SA is the most frequent type of trauma experienced by women with PTSD; one study reported that 32% of women with PTSD had been raped and 31% had experienced a SA other than rape (Chivers-Wilson, 2006). Additionally, several studies indicate that the development of PTSD is more likely with cumulative traumas, such as more than one SA or interpersonal violence experience (Cloitre et al., 2009; Najdowski & Ullman, 2009; Scott, Koenen, & King, 2018; Wadsworth & Records, 2013).

TREATMENT OVERVIEW

Treatment for ASD and PTSD associated with SA often includes therapy and medication. The interventions are based on a neurobiological understanding of traumatic stress and aimed at decreasing hypothalamus-pituitary-adrenal axis and sympathetic nervous system hyperarousal, thus preventing memory over-consolidation following fear learning (Downing, Valentine & Gaffney, 2019). An initial focus of treatment for SA is to mitigate short-term negative impacts and prevent long-term negative sequela, such as PTSD, anxiety, depression and decreased psychosocial functioning. As recommended treatments for ASD and PTSD are similar, for this report the term "PTSD" is used in referring to treatment options.

MALE, MINORITY AND LGBTQ VICTIMS

The majority of U.S. studies on SA trauma consist of white female participants indicating a gap in the literature on male and minority SA victims. Male SA is a pervasive problem, yet male victims are less likely than female victims to report rape and seek help. Valentine and colleagues (2019) postulate this may due to sociocultural norms related to male sexuality and self-identity. Although additional studies on male SA victims are needed, one study found the incidence of PTSD after rape higher in men compared to women (65 versus 46 percent), even though women are more than 10 times more likely to be raped (Vieweg et al., 2006). Many studies on therapeutic interventions for SA trauma note racial demographics, but few explore cultural or racial implications for care. In addition, there is a significant gap in the literature on SA and LGBTQ victims.

PRIOR SYSTEMATIC LITERATURE REVIEW ON EVIDENCE-BASED THERAPIES POST-SEXUAL ASSAULT

Regehr and colleagues (2013) completed an extensive systematic literature review to evaluate the effectiveness of interventions to reduce psychological distress in adult sexual assault victims. Literature review inclusion criterion were interventional studies on adolescent or adult sexual assault victims randomly assigned to experimental or control treatment groups. After an initial review of 5,779 articles, the authors found only six articles specific to treatment for adult sexual assault trauma. Following review of these six articles from 1991 to 2005, Regehr and colleagues (2013) reported that cognitive-processing therapy (CPT), prolonged exposure therapy (PET), and eye movement desensitization reprocessing (EMDR) were interventions with statistically significant effects on reduction of PTSD and depression symptoms. The studies also indicated that these interventions decreased anxiety, guilt and dissociation. Regehr et al. (2013) recommended additional studies be conducted to evaluate effective treatments for adult sexual assault trauma as this is a unique form of trauma.

CURRENT SYSTEMATIC LITERATURE SEARCH

The purpose of the systematic literature review was to evaluate evidence-based interventions for adolescent (14 years and older) and adult SA victims to provide best practice treatment recommendations for the Utah Office for Victims of Crime. To achieve this aim, the population, intervention, comparison and outcome of interest (PICO) question framework was utilized as outlined:

Question Element	Defined	Current Report
P	Person or problem	Adolescent and adult individuals who experienced SA after age of 14 years
I	Intervention or exposure	Types of therapies or treatment
C	Comparison intervention (optional)	Pre- and post-interventional tools or measures
O	Outcome	Effectiveness of therapeutic intervention(s)

METHODOLOGY

Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Thomas, 2019) guided the structure and process of the literature review. Covidence review management software was utilized to organize the literature search and relevant studies. Two or more members of the research team individually evaluated each study in every review step to determine eligibility for inclusion.

Records were searched from (January 2006 to September 2019) using the following search engines: CINAHL Complete, Academic Search Ultimate, PsycINFO, Medline, Women's Studies International, EMBASE, WoS, Cochrane, Scopus, Gender Watch, and selections from Social Science Premium Collection (Criminology Collection, Education Database, ERIC, IBSS, PAIS Index, Policy File Index, Political Science Database, Worldwide Political Science Abstracts, Social Science Database, Applied Social Sciences Index and Abstracts, Sociological Abstracts, Sociology Database, Social Services Abstracts, Sociological Abstracts). The following search terms were used: (sexual assault*" OR rape OR rapes OR "sexual violence) AND (adolescen* OR teen* OR youth* OR adult*) AND (trauma* OR "post trauma*" OR posttrauma*) AND (treat* OR therap* OR intervention* OR emdr OR "eye movement desensitization and reprocessing" OR "eye movement desensitization and reprogramming" OR cbt OR "cognitive behavioral therapy" OR cpt OR "cognitive processing therapy" OR psychotherap* OR prolonged exposure). The publication date of January 2006 was selected to capture studies not included in the previous systematic literature review conducted by Regehr et al. (2013) as summarized in this report.

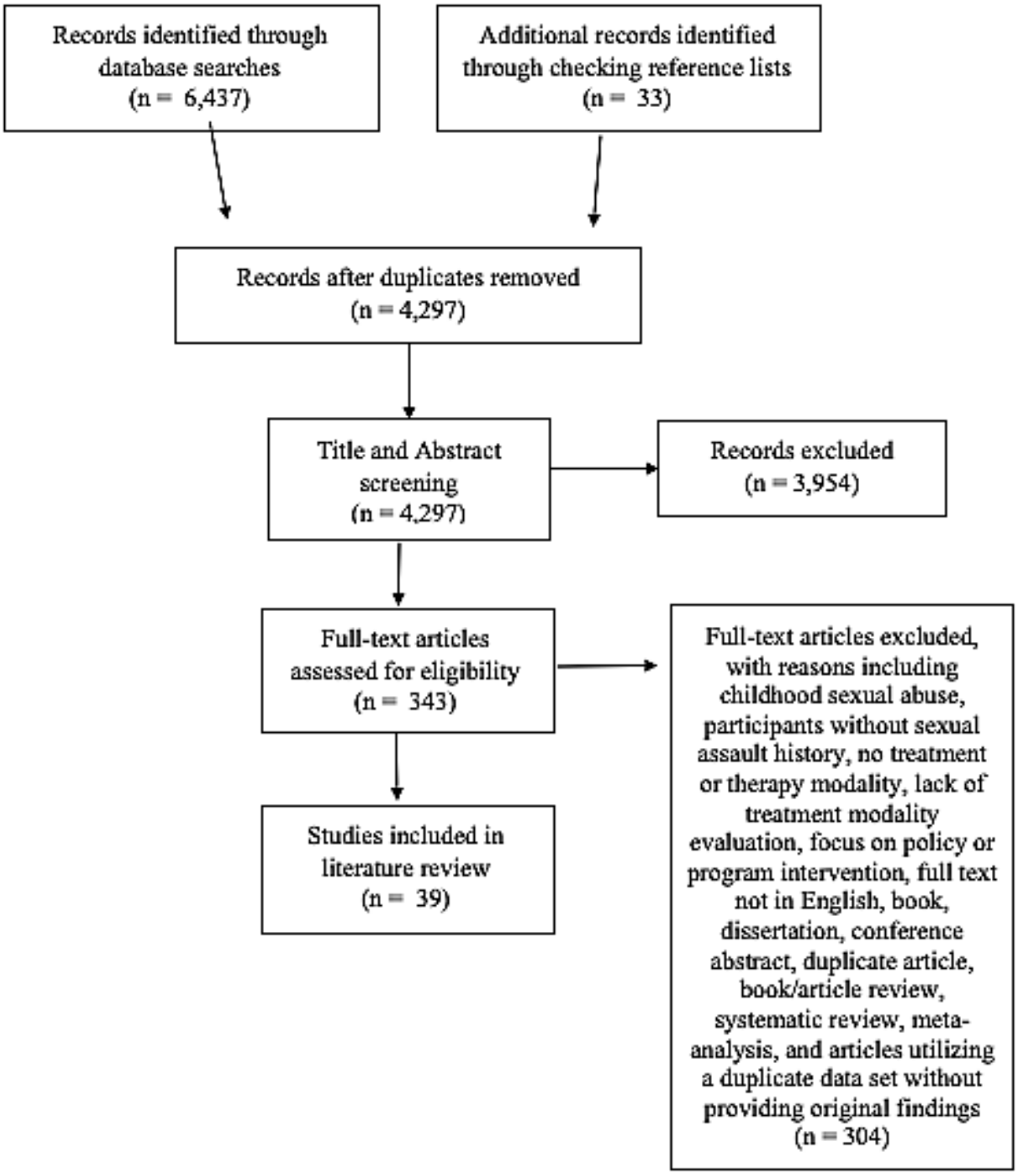
INCLUSION/EXCLUSION CRITERIA

Studies were included if they met all of the following six criteria:

1) Evaluated therapeutic interventions (including pharmacotherapy) following SA.
2) Consisted of a sample in which the victims were adolescents (age 14 or older) or adults when the SA occurred.
3) Included standardized measures or instruments for outcomes measuring PTSD symptoms, anxiety, depression, functioning, etc.
4) Reported pre and post treatment comparisons.
5) Published in a peer-reviewed journal in the English language.

Selection and review processes are detailed (see Figure 2) using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, et al., 2009).

Figure 2. **PRISMA Flow Diagram**



SYSTEMATIC REVIEW RESULTS

Thirty-nine relevant studies were included in this review: nine randomized controlled trials (RCT), 11 quasi-experimental studies, 18 case studies, and one secondary analysis of RCT (Tables 2 and 3). The majority of the studies were conducted in the U.S. (N=19) with 13 other countries represented: Australia (N=3), South Africa (N=3), Democratic Republic of Congo (N=2), Netherlands (N=2); Spain (N=2), and case studies from Canada, Denmark, France, Germany, Hong Kong, Mexico, and Taiwan.
Due to the limited amount of RCTs specific to adult sexual assault trauma, findings from quasi-experimental and case studies were included to provide additional background information. Yet, it is important to distinguish that these lower levels of evidence may lack reliability, validity and quality. Some interventions reported in quasi-experimental and case studies may be evaluated in future RCTs.

PARTICIPANTS

The collective total of participants was N=1053 with ages ranging from 14 to 90. Time from SA to therapeutic interventions varied from 24 to 72 hours post assault to years post SA with chronic PTSD symptoms. Participants were predominantly female (97.5%) with a small number of males (2.5%) and no lesbian, gay, bisexual, transgender or questioning (LGBTQ) participants. U.S. based studies who reported race were predominately Caucasian (61%) with other races represented: Black/African American, Hispanic, Asian/Pacific Islander, and others. One study had a higher percentage of African Americans (63.7%; Foa et al., 2006). Four military veteran studies and four university specific studies related to sexual trauma were included. One case study (Kroese et al., 2006) included two women with intellectual disabilities.

MALE, MINORITY AND LGBTQ STUDY PARTICIPANTS

The majority of studies represented in this systematic review consisted of primarily white, female participants (Table 1). In the studies, four studies had higher percentages of minority races (Foa et al, 2006 [68.7%]; Littleton et al., 2016 [46%]; Markowitz et al., 2017 [53%]; Suris et al., 2013 [48%]). The represented U.S. case studies had a total collective sample (N=29), with only three African Americans and one Hispanic SA participant (14%). Two international studies from the Democratic Republic of Congo were primarily black participants (Bass et al., 2013; O'Callaghan et al., 2013). Unfortunately, no LGBTQ participants were identified in any of the U.S. or international studies. Therefore, a limitation of the systematic review is low representation of minority and LGBTQ participants, which may reduce generalizability of the findings.

Table 1

Representation of Minorities in Cited Studies

Minority	Study (percentage of minority participants)	Country
Male	Belleville et al., 2018 (12%); Markowitz et al., 2017 (15%); Nixon, et al., 2016 (2%); Suris et al., 2013 (15%); Small case studies (N=1): Abbas et al., 2013; Nijdam et al., 2013 (N=1)	U.S., Australia, Canada, Netherlands
African American	Foa et al., 2006 (64%); Littleton et al., 2016 (25%); Markowitz et al., 2017 (17%); Suris et al., 2013 (35%); Small case studies: Cloitre et al., 2016 (N=3; 33%); Mott et al., 2012 (N=1)	U.S.
Native American	Small case study (N=1): Baggett et al., 2017	U.S.
Asian /Pacific Islander	Foa et al., 2006 (1%); Littleton et al., 2016 (7%); Markowitz et al., 2017 (8%)	U.S.
Hispanic	Foa et al., 2006 (4%); Littleton et al., 2016 (8%); Markowitz et al., 2017 (28%) Small case study (N=3): Cloitre et al., 2016 (33%)	U.S.
Minority	Anderson, et al., 2010 (14%); Suris et al., 2013 (13%)	U.S.
Multi-ethnic	Littleton et al., 2016 (14%)	U.S.
Aboriginal or Indigenous	Kemp et al., 2014 (33%)	Australia
African	Bass et al., 2013: O'Callaghan et al., 2013	Democratic Republic of Congo
Asian	Hung et al., 2010	Taiwan

MODE OF THERAPY DELIVERY

In the majority of the reviewed studies (10), therapy was provided individually with six studies providing group therapy as their intervention modality. Two studies combined individual and group modalities. Individual CBT was provided by an online format in two studies (Littleton et al., 2012; Littleton et al., 2016). Except for one study, case studies utilized individual therapy as the therapeutic modality. Mott et al. (2012) utilized individual and group modalities.

OUTCOME MEASURES

A large variety of outcomes and assessment instruments (n=84) were used in the 39 studies (Appendix A). The instruments assessed PTSD symptoms (n=27), anxiety and depression (n=14), treatment evaluation (n=10), adolescent age specific (n=7), past events (n=4), life quality (n=4), intimacy and sexual satisfaction (n=4), social support (n= 4), stress perception (n=2), self-esteem and worth (n=2) and miscellaneous instruments (n=6). The large number of scales and measures made it difficult to compare findings across studies.

CHARACTERISTICS OF THERAPEUTIC INTERVENTIONS

Types of therapy found in this systematic review were divided into three categories: psychotherapies, complementary and integrative health (CIH), and pharmacological treatments. Psychotherapy interventions included the following: acceptance and commitment therapy (ACT), behavior therapy, client-centered therapy (CCT), cognitive behavioral therapy (CBT), cognitive processing therapy (CPT), cognitive therapy, combination therapy, control mastery psychotherapy, dialectical behavioral therapy (DBT), emotional disclosure therapy (EDT), exposure therapy, exposure and response prevention (ERP), eye movement desensitization and reprocessing therapy (EMDR), feminist therapy, hypnotherapy, image rehearsal therapy (IRT), interpersonal psychotherapy (IPT), narrative exposure therapy (NET), present centered therapy (PCT), prolonged exposure (PE), psychodynamic therapy, psychotherapy, and supportive psychotherapy. CIH interventions included the following: aerobic exercise, art therapy, drama therapy, equine facilitated therapy, guided imagery, and MAP Training My Brain™, meditation, music therapy, relaxation therapy, and trauma sensitive yoga. Pharmacologic interventions included the following: antidepressants, antipsychotics, and MDMA. The referenced treatment modalities are listed alphabetically, briefly defined, and aligned with relevant studies (Table 2).

Table 2

Psychotherapeutic Interventions for Adolescent/Adult Sexual Assault Survivors

Intervention	Definition (American Psychological Association: APA dictionary, n.d.)	Literature Review
Psychotherapy		
Acceptance and Commitment therapy (ACT)	A cognitive behavior therapy that helps clients to accept their difficult thoughts and feelings as a necessary part of a worthy life.	Burrows, 2013; Hiraoka et al., 2016
Behavior therapy	A form of psychotherapy that focuses on behavior itself and the contingencies and environmental factors that reinforce it.	Koelsch, 2007
Client-centered therapy (CCT)	A form of psychotherapy that aids in in client self-discovery and actualization where the client resolves conflicts, reorganizes values and approaches to life, and learns how to interpret their thoughts and feelings, consequently changing behavior.	McLean et al., 2017; McLean et al., 2015; Zandberg et al., 2016
Cognitive therapy	A form of psychotherapy where the objective of the therapy is to identify faulty cognitions and replace them with more adaptive ones, known as cognitive restructuring.	Padmanabhanunni & Edwards, 2013; Payne & Edwards, 2009; Mott et al., 2012
Cognitive behavior therapy (CBT)	A form of psychotherapy that integrates techniques derived from cognitive therapy and behavior therapy. Treatment is aimed at identifying and modifying the client's maladaptive thought processes and problematic behaviors through cognitive restructuring and behavioral techniques to achieve change.	Baggett et al., 2017; Belleville et al., 2018; Bicanic et al., 2013; Billette et al., 2008; Cloitre et al., 2016; Foa et al., 2006; Littleton et al., 2012; Littleton et al., 2016; O'Callaghan et al., 2013

Cognitive processing therapy (CPT)	CPT emphasizes cognitive strategies to help people alter erroneous thinking that has emerged because of a traumatic event. Practitioners may work with clients on false beliefs that the world is no longer safe, for example, or that they are incompetent because they "let" the traumatic event happen to them.	Bass et al., 2013; Holder at al., 2019; Holliday et al., 2018; Larsen et al., 2019; Mott et al., 2012; Nixon et al., 2016; Surís et al., 2013; Wilson & Jones, 2010
Cognitive therapy	A form of psychotherapy where the objective of the therapy is to identify faulty cognitions and replace them with more adaptive ones, known as cognitive restructuring.	Padmanabhanunni & Edwards, 2013; Payne & Edwards, 2009; Mott et al., 2012
Combination therapy	The application of two or more distinct therapeutic approaches by the same therapist to a client's presenting problem.	Baggett et al., 2017; Belleveille et al., 2018; Larsen et al., 2019; Nijdam et al., 2013; Rocha & Téllez, 2016
Control-mastery psychotherapy	An integrative form of psychotherapy that focuses on changing a client's non-conscious and maladaptive beliefs developed in childhood due to thwarted attempts to achieve attachment and safety in the client's family.	Pole & Bloomberg-Fretter, 2006
Dialectical behavior therapy (DBT)	A flexible, stage-based therapy that combines principles of behavior and cognitive therapy, and mindfulness.. Its underlying emphasis is on helping individuals learn both to regulate and to tolerate their emotions and accept the reality of their lives and own behaviors.	Mott et al., 2012
Emotional disclosure therapy (EDT)	Focuses on emotions as the key determinant of psychotherapeutic change. Clients become aware of, accept, make sense of, and regulate emotions as a way of resolving problems and promoting growth.	Anderson et al., 2010; Orchowski et al., 2009
Exposure therapy	A form of behavior therapy that involves systematic and repeated confrontation with a feared stimulus, either in vivo or in the imagination, and may encompass any of a number of behavioral interventions to extinguish anxiety, fearful predictions and increase feelings of self-efficacy and mastery.	Mott et al., 2012

Exposure and response prevention (ERP)	An intensive form of behavior therapy that involves graduated exposure to situations or cues that trigger recurrent, intrusive, and distressing thoughts or provoke repetitive behaviors that are performed multiple times emotional responses no longer occur or are greatly diminished.	Nijdam et al., 2013
Eye-movement desensitization and reprocessing (EMDR)	A treatment methodology used to reduce the emotional impact of trauma-based symptoms such as anxiety, nightmares, flashbacks, or intrusive thought processes.	Nijdam et al., 2013; Rocha & Téllez, 2016; Tarquinio, Brennstuhl, et al., 2012; Tarquinio, Schmitt, et al., 2012
Feminist therapy	An eclectic approach to psychotherapy based on the psychology of women and gender to empower the client as an authority equal in value to others.	Richmond et al., 2013
Hypnotherapy	The use of hypnosis with brief psychotherapy directed toward alleviation of symptoms and modification of behavior patterns.	Poon, 2009; Rocha & Téllez, 2016
Imagery rehearsal therapy (IRT)	A short-term cognitive behavior intervention for individuals experiencing nightmares to reduce frequency and intensity, decrease distress and anxiety, and enhanced sleep quality.	Belleville et al., 2018; Kroese & Thomas, 2006
Interpersonal psychotherapy (IPT)	A form of psychotherapy that focuses on client's interpersonal interactions with significant others where current and past experiences are explored along with general environmental influences on personal adaptive and maladaptive thinking and behavior.	Markowitz et al., 2017
Narrative exposure therapy (NET)	Trauma treatment particularly for complex and multiple traumas.	Mott et al., 2012
Present centered therapy (PCT)	Non-trauma focused with the goal to focus on patient's current/present life while recognizing the connection between symptoms and current struggles.	Suris et al., 2013

Prolonged exposure (PE) therapy	A brief treatment form of cognitive behavior therapy for PTSD in adults based on emotional processing theory that aims to habituate clients to the traumatic event so that it no longer evokes the excessive anxiety, fear, and other distressing emotions.	Baggett et al., 2017; Brown et al., 2019; Larsen et al., 2019; Markowitz et al., 2017; McLean et al., 2017; McLean et al., 2015; Zandberg et al., 2016
Psychodynamic therapy	Views individuals as reacting to unconscious forces. Focus on processes of change and self-understanding and making meaning of unconscious.	Abbas et al., 2013; Barglow, 2014; Fahs, 2011
Psychotherapy	General term for many types with four main categories: psychodynamic, cognitive or behavioral, humanistic and integrative.	Bouso et al, 2008; Koelsch, 2007
STAIR & Narrative therapy	Two part therapy that combines narrative therapy and skills training in affective and interpersonal regulation (STAIR) in emotion management and interpersonal. Narraitve therapy that helps reinterpret and rewrite their life events into true but more life-enhancing narratives or stories.	Cloitre et al., 2016
Supportive psychotherapy	Therapy that aims to relieve emotional distress and symptoms without probing into the sources of conflicts or attempting to alter basic personality structure. It emphasizes reassurance, reeducation, advice, persuasion, re-motivation, and encouragement of desirable behavior.	Foa et al., 2006
Complementary and Integrative health (CIH)		
Aerobic exercise	Physical activity, typically prolonged and of moderate intensity (e.g., walking, jogging, cycling), that involves the use of oxygen in the muscles to provide the needed energy. Aerobic exercise strengthens the cardiovascular and respiratory systems and is associated with a variety of health benefits, including decreased depression and anxiety.	Shors et al., 2018
Art therapy	The use of artistic activities in psychotherapy as a vehicle for developing new insights and understandings, resolving conflicts, solving problems, and formulating new perceptions to achieve positive changes, growth, and rehabilitation.	Visser & du Plessis, 2015

Drama therapy	The use of theater techniques to gain self-awareness and increase self-expression.	Hung, 2010
Equine - facilitated therapy	The therapeutic use of pets to enhance individuals' physical, social, emotional, or cognitive functioning.	Kemp et al., 2014
Guided imagery	A mind–body technique involving the deliberate prompting of mental images to induce a relaxed, focused state with the goal of managing stress or pain, promoting healing, or enhancing performance.	Story & Beck, 2017
MAP Training My Brain™	Novel clinical intervention that combines mental training of the brain with physical training of the body (maptrainmybrain.com)	Shors et al., 2018
Meditation	Contemplation or reflection in order to achieve focused attention or an altered state of consciousness to gain insight into oneself and the world. Provides relaxation and relief from stress, pain, and insomnia; and promotes overall health and well-being.	Shors et al., 2018
Music therapy	The use of music to enhance a person's psychological, physical, cognitive, or social functioning through a variety of techniques.	Story & Beck, 2017
Relaxation therapy	The use of muscle-relaxation techniques to aid in the treatment of emotional tension.	Markowitz et al., 2017
Trauma sensitive yoga	Prescribed mental discipline and physical exercises, including regulation of breathing and the adaptation of bodily postures, used as a means of releasing tension and redirecting energy and achieving a state of self-control, physical and mental relaxation, and finally deep contemplation.	Crews et al., 2016
Pharmacological Interventions		
Antidepressants	Serotonin –Reuptake Inhibitor (SSRI): Citalopram and Paroxetine	Koelsch, 2007; Nijdam et al., 2013
Antipsychotics	Atypical: Olanzapine	Koelsch, 2007
MDMA	Experimental with therapy	Bouso et al., 2008

RECOMMENDED TREATMENTS FROM SYSTEMATIC REVIEW

Randomized controlled trials (RCT) are the gold standard studies as participants are randomized to reduce bias and cause-effect relationships between an intervention and outcomes are evaluated. Our systematic review found nine RCTs for psychotherapeutic interventions: EDT (Anderson et al., 2010 and secondary analysis Orchowski et al., 2009); CPT (Bass et al., 2013; Suris et al., 2013); CBT (Belleville et al., 2018; Foa et al., 2006; O'Callaghan et al., 2013); and psychotherapy with MMDA (Bouso et al, 2008). Only one complementary health intervention meet the inclusion criteria, aerobic exercise and meditation (Shors et al., 2013). Bouso et al. (2008) studied a pharmacological intervention with psychotherapy. Based upon this systematic review findings, RCT studies strongly support use of CPT and CBT for sexual assault trauma and PTSD while EDT and MMDA lack evidence for support.

Eleven quasi-experimental studies, participants not randomized to a specific intervention, were found in the systematic review. As these participants were not randomized to specific interventions, the findings may have potential bias; therefore, these studies have less scientific validity. The most frequent therapy explored in quasi-experimental studies was CBT (Bicanic et al., 2013; Littleton et al., 2012; Littleton et al., 2016). Other psychotherapies included CPT (Nixon et al., 2016); EMDR (Tarquinio et al., 2012) and PE (Markowitz et al., 2017). A variety of complementary health interventions were also studied: art therapy (Visser et al., 2015); drama therapy (Hung, 2010); equine facilitated therapy (Kemp et al., 2014); guided imagery and music (Story et al., 2017); and yoga (Crews et al., 2016). The quasi-experimental studies summarized in this systematic review support CBT, CPT and EMDR for sexual assault survivors.

While important for exploring the feasibility of possible treatments for treating trauma from SA, case studies consisted of a single-subject or small group and used to generate hypotheses for future research. Because the evidence for or against a specific treatment is of low quality from case studies, evidence from the 19 case studies found in the systematic review were not influential in making recommendations but are summarized in treatment descriptions and Appendix B.

Table 3.

Main Evidence of Reviewed Studies

Study/Type	Intervention	Design	Sample/ Population	Outcome Measures	Main Findings
Anderson et al. (2010) Individual	Emotional disclosure therapy (EDT)	RCT[1]	Female university students, SA victims, (*N*=26)	PTSD Social function	• Decreased IES-R[a] scores with social avoidance (p<.05). • No significant difference between baseline, termination, and follow-up with PTSD and social function. • Significant reductions (IIP[b]) in interpersonal distress (hostility, dependency, and avoidance symptoms) (p<.05) at 3 month follow-up but no further longitudinal findings.
Bass et al. (2013) Individual + group	Cognitive processing therapy (CPT)	RCT[1]	Female Congolese, SA victims, (*N*=405)	PTSD Anxiety Depression	• HTQ[c] trauma scores improved (p<0.001). • HSCL-25[d] depression and anxiety scores improved (p<0.001). • At 6 months 9% in CPT and 42% in individual support met criteria for anxiety or depression (p<0.001).
Belleville et al. (2018) Individual	Cognitive behavioral therapy (CBT) with imagery rehearsal therapy (IRT)	RCT[1]	Adult Canadian SA victims with PTSD, (*N*=42)	PTSD Sleep Social Function	• Significant decreases in SS-PTSD[e] symptoms (d=1.52) with 73% no longer meeting PTSD criteria (CAPS[f]). • NDQ[g] showed decrease in nightmare frequency (*d*=0.91) with significant improvement in sleep quality (d=0.91). • PSQI[h]- significant reduction in disruptive nocturnal behaviors (d=0.72) with further improvements during CBT (d= 0.83). • WHODAS[i] scores decreased in experimental (d=0.67) and control (d=0.45) groups.
Bouso et al. (2008) Individual	Psychotherapy with MDMA	RCT[1]	Spanish, females with chronic PTSD (*N*=6)	PTSD Anxiety Depression	• SS-PTSD[e] results varied from 4.5 points (placebo) to 20 points (MDMA) with improvements in placebo group. • BDI[j] and HAM-D[k] had lower depression scores.

					• One subject showed greater improvement which biased the findings in this small study where statistical differences could not be demonstrated.
Foa et al. (2006) Individual	Brief – CBT (B-CBT)	RCT[1]	Adult females with PTSD, (*N*=90)	PTSD Anxiety Depression	• B-CBT had a trend toward lower SS-PTSD[e] severity scores (p=.06). • No difference in PSSI[l], BDI[j] or PTSD criteria. • Lower anxiety BAI[m] (p<.05).
O'Callaghan et al. (2013) Group	Trauma focused cognitive behavioral therapy (TF-CBT)	RCT[1]	Adolescent war-affected girls exposed to sexual violence, (*N*=52)	PTSD Anxiety Depression Social Function	• Highly significant reductions in anxiety, depression and trauma symptoms UCLA-PTSD-RI[n] post treatment were maintained at 3 month follow-up (p<.001). • Significant increase in prosocial behavior AYPA[o] post treatment (p<.05) and 3 month follow-up (p<.001).
Shors et al. (2018) Group	MAP Training My Brain™ vs. meditation vs aerobic exercise	RCT[1]	Women with history of SA trauma (n=32) of sample (*N*=105)	PTSD Self-worth	• Reduction in PTSD thoughts and cognitions (SCID[p]): ANOVA [$F_{(1, 101)} = 4.06$, $p < 0.05$] and meditation alone, [$F_{(1, 101)} = 8.40$, $p = 0.005$] • Ruminative thoughts reduced RRS[q] scores ($p < 0.05$) • Self-worth scores were significantly enhanced, Best Self Scale, ($p < 0.05$). • Combination of meditation and exercise with MAP training were synergistic.
Surís et al. (2013) Individual	CPT vs. present-centered therapy (PCT)	RCT[1]	Veterans with PTSD and depression related to military sexual trauma, (*N*=86)	PTSD Depression	• CPT had significantly lower PTSD severity (CAPS[f]) at post treatment (p=.05) with no differences at follow-ups: 2 months (p=.07), 4 months (p=.48), 6 months (p=.13). • CAPS[f] score trended in favor of CPT (d=-0.49) • Between group sizes on QIDS[r] trended in favor of CPT (d=-1.58)

Bicanic et al. (2014) Individual + group	CBT	QE[2]	Female adolescents with history of rape, (*N*=55)	PTSD Anxiety Depression Anger Sexual	• Significant decreases in PTSD, anxiety, depression, and sexual concerns (p<.001) with large effect sizes (d between 1.13 and 2.130) (TSCC[s] & SSCL-90[t]). • Anger decreased significantly (p<.05).
Crews et al. (2016) Group	Trauma sensitive yoga	QE[2]	Adolescents and adults with history of rape, (*N*=8)		• Themes of moving to self-kindness, to common humanity, and being mindfulness.
Hung (2010) Group	Drama therapy	QE[2]	Taiwanese "comfort women" (*N*=10)		• Themes of being more in control, increased confidence, and reduced painful feelings. • Transformation from victims to survivors with power.
Kemp et al. (2014) Individual + group	Equine-facilitated therapy with counseling	QE[2]	15 female adolescents with a history of SA, (*N*=30)	PTSD Anxiety Depression	• Reduced dissociation (TSCC[s]; p<.001), post-traumatic stress (p<.001), and anxiety symptoms (p<.001). • Reduced BAI[m] anxiety and BDI[j] depression (p<.001).
Littleton et al. (2012) Individual	Online CBT	QE[2] Pilot study	College women with rape-related PTSD, (*N*=5)	PTSD Anxiety Depression	• 4 out of 5 participants no longer met criteria for PTSD (PSS-I[l]) and reported decreased vulnerability fears (VK-MFS[u]). • 2 out of 4 participants reported significant reductions in anxiety ([v]4DSQ) and depression (CES-D[w]) symptoms.
Littleton et al. (2016) Individual	Online CBT Interactive program vs Psycho-educational website	QE[2]	College women with rape-related PTSD, (*N*=87)	PTSD Anxiety Depression	• Both groups had significantly lower PSS-I[l] scores (p<.001) post treatment with 80% reporting PTSD symptom reductions in interactive program (p<.001). • Significant reductions in anxiety (4DSQ[v]): Interactive (p=.033) and website (p<.001). • Significant reductions in depression (CES-D[w]; p<.001).

Markowitz et al. (2017) Individual	Prolonged Exposure (PE) vs Interpersonal psychotherapy (IPT) vs. relaxation therapy (RT)	QE[2]	Adults with PTSD related to sexual abuse, (*N*=39)	PTSD	• IPT had greater efficacy in reducing PTSD symptoms (CAPS[f]) of re-experiencing and arousal (p<.05).
Nixon et al. (2016) Individual	CPT vs. treatment as usual (TAU)	QE[2]	Adults with ASD who experienced SA assault in last month, (*N*=47)	PTSD Depression	• Both groups had PTSD reductions (CAPS[f]) with effect sizes between 1.01 to 1.45 and 0.76 to 1.25 (PCI[x]) with CPT favored post treatment (d=0.03) and one year (d=0.66). • Depression (BDI[j]) favored CPT at 1 year, (d=0.41).
Story & Beck (2017) Individual	Music therapy	QE[2]	Female veterans with PTDS related to SA, (*N*=4)	PTSD	• Music a strategy to copy with PTSD symptoms. • Imagery a learned resource for grounding.
Tarquinio et al. (2012) Individual	EMDR	QE[2]	Women raped and seen within 24 to 72 hours, (*N*=17)	PTSD	• One session reduction in IES-R[a] (p<.001). • Significant reduction in PTSD symptoms SUD[y] (p<.001).
Visser et al. (2015) Group	Art therapy	QE[2]	Adolescent female SA survivors, (*N*=6)	Self esteem	• Themes of moving to self-kindness, to common humanity, and to mindfulness.

Note: [1]RCT = Randomized controlled treatment; [2]QE=Quasi-experimental. [a]Impact of Events Scale- Revised, [b]Inventory of Interpersonal Problems, [c]Harvard Trauma Questionnaire, [d]Hopkins Symptom Checklist, [e]Severity of Symptoms Scale for Post-traumatic Stress Disorder, [f]Clinician Administered PTSD Scale, [g]Nightmare Distress Questionnaire, [h]Pittsburgh Sleep Quality Index, [i]World Health Organization, [j]Beck Depression Inventory, [k]Hamilton Depression, [l]PTSD Symptom Scale-Interview, [m]Beck Anxiety Inventory, [n]UCLA-PTSD-RI, [o]African Youth Psychosocial Assessment Instrument, [p]Structured Clinical Interview for DSM-5, [q]Ruminative Responses Scale, [r]Quick Inventory of Depressive Symptomatology, [s]Trauma Symptom Checklist, [t] Symptom Checklist-90-R, [u]Veronen-Kilpatrick Modified Fear Survey, [v]Four Dimensional Anxiety Scale, [w]Center for Epidemiologic Studies Depression Scale, [x]Posttraumatic Cognitions Inventory, [y]Subjective Unit of Distress.

PUBLISHED CLINICAL PRACTICE GUIDELINES

VA/DoD Clinical Practice Guidelines for Management of PTSD and Acute Stress Reaction (2017) identified 40 evidence-based recommendations: strongest evidence (prolonged exposure (PE), cognitive processing therapy (CPT), eye movement desensitization and reprocessing (EMDR); sufficient evidence (cognitive behavioral therapies (CBT) for PTSD, brief exposure therapy (BEP), narrative exposure therapy (NET), and written narrative exposure. VA/DoD (2017) guidelines were impacted by two recent meta-analyses which found that trauma focused psychotherapies have a more positive impact on core PTSD symptoms than pharmacotherapies, and the improvement persists for longer periods of time. If a patient prefers a treatment that does not focus on trauma, individualized psychotherapy is recommended, including stress inoculation training (SIT), present-centered therapy (PCT) and interpersonal therapy (IPT) (VA/DoD, 2017). The American Psychological Association (APA) clinical practice guidelines recommend the following treatments for treating adults with PTSD: strongly recommended - psychotherapy (cognitive behavioral therapy (CBT), cognitive processing therapy (CPT), cognitive therapy (CT), and prolonged exposure (PE) therapy; conditionally recommended- brief eclectic psychotherapy (BEP), eye-movement desensitization and reprocessing therapy (EMDR), and narrative exposure therapy (NET); insufficient evidence – relaxation and Seeking Safety (Bufka et al., 2020). Additionally, the APA (2020) strongly recommends PE or PE plus cognitive restructuring and antidepressants (Bufka et al., 2020).

TREATMENT RECOMMENDATIONS

The following treatment recommendations merge findings from this systematic review; prior systematic review (Regehr et al, 2013); SA specific trauma, and PTSD clinical practice guidelines from APA (Bufka et al., 2020) and VA/DoD (2017). The recommendations are meant to serve as a guide for Utah Office for Victims of Crime on treatment requests and funding, yet therapeutic modality recommendations do not replace a clinician's responsibility and judgment to tailor treatment to the specific needs of the individual patient. Therapeutic recommendations aligned with specific studies and clinical practice guidelines are listed below with a summary of therapeutic interventions and recommendations in Table 4 and Appendix B.

PSYCHOTHERAPY

Psychotherapy is a general term for a variety of psychotherapeutic approaches and considered the gold standard for trauma treatment for ASD and PTSD (Bufka et al., 2020). Some popular approaches have been used for decades, while others are relatively new. Overall, most psychotherapies evaluated for this review performed better than control groups.

DESCRIPTIONS OF TYPES OF PSYCHOTHERAPY (LISTED ALPHABETICALLY):

1. Acceptance & Commitment Therapy (ACT). This treatment that combines mindfulness and acceptance techniques with behavioral commitments. As a treatment for trauma it may help to reduce PTSD symptoms and experiential avoidance. SA trauma specific evidence for ACT was limited to two case studies (Burrows et al., 2013; Hiraoka et al., 2016). The VA/DoD (2017) found insufficient evidence to support ACT as a trauma treatment. Boals et al. (2016) utilized a modified version of ACT in traumatized participants (n= 63) from a community outreach center compared to a control group and found the ACT group had decreases in PTSD, depression and event centrality symptoms. A pilot study with veterans with PTSD (n=10) utilizing individual and group sessions found significant reductions in PTSD for both the individual and group interventions (Wharton et al., 2019). ACT may provide an alternative treatment for PTSD and trauma, particularly when exposure therapy is not tolerated by the patient. **Recommend with qualification, or not as primary treatment.**

2. Brief Eclectic Psychotherapy (BEP). This review found no specific studies utilizing BEP with victims of SA. VA/DoD (2017) found that there was sufficient evidence to support BEP as an evidence-based treatment for trauma and PTSD. Although not specific to SA trauma, a recent RCT comparing BEP to EMDR found a reduction in PTSD symptoms and improved posttraumatic growth compared to EMDR (Nijdam et al., 2018). There were several limitations to the Nijdam et al. (2018) study; it had no control group and the stability of the changes was not determined. Recent APA guidelines for PTSD treatment (Bufka et al., 2020), recommended BEP as an evidenced-based treatment for PTSD. Even though there were no studies utilizing BEP with SA victims (adult or adolescents), there is still significant evidence (Bufka et al., 2020; VoA/DoD, 2017; Nijdam et al., 2018) to recommend BEP for trauma victims. Recommend.

3. Cognitive Behavioral Therapy (CBT). CBT is focused on identifying dysfunctional thoughts and attitudes engendered by the trauma, followed by challenging and replacing these beliefs with more realistic cognitions. Behavioral changes result from choosing actions based on these modified beliefs. The review of the literature conducted by Landolt et al. (2017) found substantial evidence for the use of cognitive therapy for PTSD in adolescents. Cahill et al. (2009) in their review of the literature found sufficient evidence to support CBT (group and individual) for trauma and PTSD.

Eight studies utilized CBT with SA victims, with two studies specifically targeting the adolescent population (Bicanic et al., 2013, O'Callaghan et al., 2013). Overall, the findings found CBT adult and adolescent participants had lower anxiety, depression, and PTSD symptoms. While other studies did not explore sleep disruption, Belleville, et al. (2018) found CBT improved sleep quality and decreased nightmares. Functional and social impairments were decreased in adolescents and adults, supporting the importance of early treatment.

Positive short-term treatment with CBT in Foa et al. (2006) found that treatment gains did not maintain at post treatment follow-ups, which emphasizes the importance of adequate time to treat for enduring benefit. Strongly recommended, brief CBT is not recommended.

4. Trauma-focused Cognitive Behavioral Therapy (TF-CBT). TF-CBT is a first-line treatment for trauma and is the most extensively researched treatment for adolescents. Numerous randomized, controlled trials have demonstrated that TF-CBT is effective at reducing the impact of trauma, demonstrating significant improvements in anxiety, depression, dissociation, feelings of shame, sexual problems, and PTSD symptoms (Landolt et al., 2017). According to the World Health Organization [WHO] 2013, CBT (group or individual) is a standard recommendation for adults with acute traumatic stress and is associated with significant improvement in daily functioning. A recent systematic review of randomized controlled trials of internet delivered CBT (I-CBT) by Simon et al. (2019) found the internet mode of treatment delivery was an acceptable intervention for PTSD for individuals aged 16 to adults. However, there was evidence of greater dropout from I-CBT than waitlist; but no difference between I-CBT and non-CBT treatments dropouts (RR 2.14; CI 0.97—4.73). Strongly recommend.

5. Cognitive Processing Therapy (CPT). This form of CBT is usually delivered in 12 sessions. Two randomized control trials and several case studies included in this review found CPT intervention reduced PTSD symptoms related to SA post treatment and follow-up. Nixon's et al. (2016) study was the exception, finding the difference between CPT and "treatment as usual" at 12 months being negligible. Resick's et al. (2012) long term follow-up study of their previous 2002 study (Resick et al. 2002) of SA victims receiving treatment with CPT or prolonged exposure found continued improvements in symptoms of PTSD, depression, anxiety, guilt and anger, and was not related to any further therapy or medication. VA/DoD (2017) found the strongest evidence existed for CPT as treatment for PTSD. Across numerous racially diverse population studies and telehealth conditions, CPT has strong empirical support (Bufka et al., 2020). VA/DoD (2017) also found sufficient evidence for CBT, and strong evidence for CPT for PTSD treatment in adults. APA (Bufka et al., 2020) strongly recommended CBT and CPT based on Ehlers and Clark's (2000) model of PTSD, which has been empirically supported in many studies. Clear, continued evidence exists supporting CBT and CPT. Strongly recommend.

6. Control Mastery Therapy. Only one case study (Pole & Bloomberg-Fretter 2006) utilized this combination of cognitive, psychodynamic and humanistic therapy on a woman who not only had history of sexual abuse, but also childhood incest and severe neglect, which confounds the findings. No literature was found to support this modality. Insufficient data to recommend.

7. Dialectical Behavior Therapy (DBT). This therapy is the gold standard evidence-based treatment for borderline personality disorder (Linnehan, 1993). However, research on DBT following SA was limited to only one case study with military sexual trauma (Mott et al., 2012). This case study utilized CPT with exposure-based therapy, and DBT (individual and group), which makes it difficult to ascertain the true impact of DBT alone on trauma treatment. VA/DoD (2017) reviewed research on DBT and found insufficient evidence to support DBT as an evidence-based treatment for trauma and PTSD. APA (Bufka et al., 2020) did not review DBT. Insufficient data to recommend.

8. DBT with Prolonged Exposure (PE). Meyers et al. (2017) studied PE with DBT in veterans (N=22) with borderline personality symptoms, including suicidal ideation, in a 12-week program in an outpatient setting. They found a moderate effect size in reduction of PTSD symptoms and suicidal ideation (Meyers et al., 2017). Harned et al. (2014) merged PE with DBT for suicidal and self-injuring behaviors in patient with PTSD. These pilot studies provide preliminary evidence that DBT in combination with PE may be used to decrease symptoms of PTSD when accompanied by suicidal ideation and self-harm. Recommend with qualification, or not as primary treatment.

9. Emotional Disclosure Therapy (EDT). Orchowski's et al. (2009) secondary analysis of the Anderson et al. (2010) study of survivors of intimate partner SA (n=2) lacked sufficient evidence. A review of the literature did not find any studies using EDT with PTSD or trauma victims. Not recommended.

10. Eye Movement Desensitization and Reprocessing (EMDR). This unique therapy is one of two psychotherapies recommended by the WHO (2013) for the treatment of PTSD in adolescents and adults. Tarquinio et al. (2012) utilized Eye Movement Desensitization and Reprocessing (EMDR) with SA victims within 24 to 72 hours post SA and found reduced intrusive and avoidance symptoms, as well as anxiety and depression symptoms. Shapiro (2014) reviewed the effects of EMDR in adults with single-event trauma and established that five hours of treatment resulted in a 84-100% remission of PTSD symptoms. The randomized controlled trial by Nijdam et al. (2018) found a reduction in PTSD symptoms and improved post traumatic growth. A recent study (Covers et al., 2019) utilized early EMDR intervention seven days post SA that successfully reduced the onset of PTSD symptoms. Reviewing the evidence, VA/DoD (2017) and APA (Bufka et al., 2020) guidelines concluded that EMDR has very strong evidence for trauma and PTSD treatment. Strongly recommend.

11. Exposure Response Prevention (ERP). Nijdam's et al. (2013) case study combined ERP with EMDR and an antidepressant for a patient with comorbid obsessive compulsive disorder and sexual assault trauma. ERP has been used extensively to treat OCD symptoms. Rauch & Rothbaum (2016) purported that exposure-based and exposure response prevention could be a more novel intervention for PTSD symptom in victims who are not willing to engage in more evidence-based treatments. The combination of treatments used in this case study and lack of research supporting ERP alone for PTSD is problematic. The APA (Bufka et al., 2020) and VA/DoD (2017) did not review ERP for PTSD and trauma treatment. Not recommended.

12. Feminist Therapy. The focus of feminist theory is on the impact of societal gender roles or social role relationships with psychological well-being, survivorship, emotional expression, stigma of mental illness, and personal empowerment. Richmond's et al. (2013) case study of a woman with history of SA utilized novel feminist therapy. Feminist therapists integrate a variety of strategies aimed at increasing individual power into their psychotherapy to address special needs in individuals with complex trauma (Brown, 2018). Carr and McKernan's (2015) adapted feminist theoretical foundations and interventions to male veterans to study feminist theories in combination with CPT and PE. Recommend in conjunction with other evidence-based treatments.

13. Hypnotherapy. Reported case studies utilizing hypnosis (Poon, 2009; Rocha et al., 2016) provide low evidence to support for SA trauma treatment. VA/DoD (2017) concluded that evidence was limited and of low quality to support hypnosis for trauma and PTSD treatment. Rotaru & Rusu's (2015) meta-analysis found four studies where hypnosis was used with other therapies and concluded that hypnosis could be a value-added modality to alleviate PTSD symptoms. Concerns about the methodology of some of the studies in the meta-analysis were raised by Rotaru and Rusu (2015). APA (Bufka et al., 2020) did not review hypnosis due to limited evidence. Anderson et al. (2019) studied hypnosis with emotional freedom techniques (n=30) in SA specific PTSD participants and found a 34.8% reduction in PTSD symptoms. Evidence for hypnosis alone continues to be low quality with no randomized controlled trials. Not recommended.

14. Image Rehearsal Therapy (IRT). IRT studies are limited to Belleville's et al. (2018) combination with CBT and IRT, which makes it difficult to separate the true impact of IRT on participants. Korese et al. (2006) was a small study (n=2) of women with intellectual disabilities, and did not utilize any standardized with no use of outcome measures. A review of the literature, including APA (Bufka et al., 2020) and VA/DoD (2017) for evidence for IRT in PTSD or trauma yielded no results. Not recommended.

15. Interpersonal Psychotherapy (IPT). VA/DoD (2017) recommended IPT for veterans. IPT is a form of psychotherapy that focuses on current and past experiences with thinking and behaviors. Bleiberg and Markowitz (2019) described IPT modifications for PTSD and proposed that patients with depression or sexual trauma might possibly fare better with IPT. Recommend with qualification or not as primary treatment.

16. Narrative Exposure Therapy (NET): in this systematic review (Mott et al., 2012); however, according to APA clinical guidelines (Bufka et al., 2020), NET is a useful, effective, and evidence-based intervention for PTSD symptoms in adolescents and young adults. The VA/DoD (2017) found sufficient evidence to support NET for trauma and PTSD. A recent meta-analysis and meta-regression analysis of NET (Lely et al., 2019) found high external validity and methodological quality, with NET outperforming non-active comparative treatments and sustained results (decreased PTSD and depression symptoms). APA (Bufka et al., 2020) specifically identified NET as an evidence-based treatment for survivors of violence. Strongly recommend.

17. Present Centered Therapy (PCT). Suris' et al. (2013) randomized controlled trial compared CPT and PCT in participants with sexual trauma and results favored CPT. VA/DoD (2017) recommended PCT in combination with other therapies. APA (Bufka et al., 2020) recommended a PCT focus in the beginning CBT sessions. A recent Cochrane Review (Belsher et al., 2019) found moderate-quality evidence that PCT is effective in reducing PTSD severity compared to controls. All the included studies were primarily designed to test effectiveness of TF-CBT to PCT, which may have biased results. Belsher et al., 2019 concluded that PCT may be offered as treatment for PTSD when TF-CBT is not available. Recommend with qualification, or not as primary treatment.

18. Prolonged Exposure (PE) Therapy. Unfortunately Markowitz's et al. (2017) PE study did not separate out participants who had been sexually assaulted exclusively, which limits the findings specifically for SA victims. Foa's et al. (2013) adolescent (13-18 age) study's findings of reduced PTSD and depression symptoms demonstrated the effectiveness of PE and led to its designation as "well supported by research evidence" from the California Evidence-Based Clearinghouse for Child Welfare (2011). Landolt's et al. (2017) PE for adolescent therapy is an adaptation of the widely studied, empirically validated adult protocol of PE therapy. The literature supporting PE in the treatment of adults with PTSD is extensive and has shown rapid and large reduction in PTSD symptoms, depression, anxiety, anger, and guilt symptoms, with improvements in social functioning maintained up to 10 years post treatment (Markowitz et al., 2015; Resick et al., 2012). Brown et al. (2018) found a transactional relationship between PTSD and depression symptoms with a reduction in one symptom cluster being followed by a decrease in the other symptom cluster. Both the APA (Bufka et al., 2020) and VA/DoD (2017) concluded that PE had very strong evidence for trauma and PTSD treatment. Strongly recommend.

19. Psychodynamic Psychotherapy. Although promising, the case studies of Abbas et al. (2013), Barglow (2014) and Fahs (2011) provide poor level of evidence for psychodynamic psychotherapy for PTSD and trauma, especially when psychodynamic psychotherapy was combined with other treatment modalities. APA's (Bufka et al., 2020) clinical guidelines supported psychodynamic psychotherapeutic approach as part of BEP, which the APA supports as evidence-based treatment for PTSD (Bufka et al., 2020). The VA/DoD's (2017) review found insufficient evidence to support psychodynamic psychotherapy as a stand-alone treatment for PTSD and trauma. Recommend in conjunction with other evidence-based therapies.

20. Psychotherapy (undefined). The two studies of undefined psychotherapy were both case studies that combined with pharmacological therapy: MMDA (Bouso et al., 2008) and antidepressant and antipsychotic medications (Koelsch, 2007). Neither of these case studies specified the type of psychotherapy utilized. Psychotherapy is a general term for many types of therapies. Not recommended, unless psychotherapy specified.

21. Seeking Safety. This is a manualized treatment approach for individuals with PTSD, trauma and substance abuse. No specific studies with sexual assault victims utilizing Seeking Safety were found in this review. A meta-analysis of the effectiveness of Seeking Safety for PTSD and substance abuse found medium effect sizes for decreasing PTSD symptoms and modest effect sizes for decreasing symptoms of substance abuse (Schäfer, et al., 2019). APA (Bufka et al., 2020) found insufficient evidence to either support or reject Seeking Safety as a treatment for PTSD. The Substance Abuse Mental Health Services Administration (2020) stated that Seeking Safety is an evidence-based treatment approach for those with trauma, PTSD and comorbid substance abuse. Recommend with qualification, or not as primary treatment.

22. Skills Training in Affective and Interpersonal Regulation & Narrative Therapy. This treatment approach combines narrative therapy and functional skills training (Skills Training in Affective and Interpersonal Regulation, or STAIR). Only one small study (n=3) with SA victims found improved PTSD symptoms (Cloitre et al., 2016), but provided low quality of evidence for the effectiveness of this treatment modality for SA victims. VA/DoD's (2017) review found insufficient evidence to support STAIR narrative therapy. Not recommended

23. Supportive Psychotherapy. Supportive counseling was utilized in many of the studies as the comparison group for treatment modalities in this review. Supportive counseling has not been shown to be effective for reducing trauma or PTSD symptoms as a first line treatment. Not recommended.

COMPLEMENTARY TREATMENTS

Complementary treatments include mindfulness and physical therapies. Although many complementary approaches are safe and may be effective for individuals with PTSD, research does not support their practice as primary treatment for PTSD (Wahbeh et al., 2014; Rosenbaum et al., 2015). VA/DoD (2017) found insufficient evidence to recommend the majority of complementary treatments as primary PTSD treatment modalities.

A. Aerobic Exercise. One study (Shors et al. 2018) compared MAPTM training (combines mental training with meditation and physical training) to meditation only and exercise only in SA victims and found that exercise and meditation did not reduce trauma- related cognitions and ruminative thoughts. It should be noted that meditation and exercise were the control group. Rosenbaum et al. (2015) conducted a systematic review and meta-analysis (n=200) and found that physical activity (aerobic exercise & trauma informed yoga) was significantly more effective compared to usual care to improve PTSD and depressive symptoms in adults. A recent literature review of aerobic exercise impact on PTSD symptomology (n=19) in civilian and military populations found encouraging evidence that aerobic exercise alone or as an adjunct to standard treatment may positively impact PTSD symptoms (Hegberg, et al. 2019).

The mechanism for this positive impact on PTSD could be related to exposure and desensitization to internal physiological arousal cues (fewer symptoms of hyperarousal), enhanced cognitive function (reduced hypervigilance and avoidance), exercise-induced neuroplasticity, normalization of hypothalamic pituitary axis (HPA) functions and activation of immune system with reduced inflammation (Hegberg, et al., 2019). Data analysis from focus group discussions and individual interviews (n=8) in Smith-Marek et al. (2018) found restricted exercise choices (where, with whom, and types due to need to feel safe and manage trauma triggers) were impacted by one's stage of recovery. In these studies, no optimal frequency, intensity and type of aerobic activity or yoga was identified for people with PTSD. More effectiveness and implementation studies are needed to explore the optimal method of delivery for these therapies. Despite the relative paucity of strong data, there is good evidence to support that aerobic exercise and trauma-informed yoga may be helpful to victims of SA in conjunction with current best practice PTSD treatments. Recommend with qualification, or not as primary treatment.

B. Art, Drama, & Music Therapy. Visser and du Plessis' (2015) art group intervention (n=6) and Hung's (2010) drama therapy study (n=10) were too small to derive any strong conclusions. The sample size in Story & Beck's (2017) individual guided imagery and music therapy with SA victims study was also too small to provide any meaningful analysis (n=4). Baker et al. (2018) was the only systematic review of creative arts therapies for PTSD, comprising seven studies, and concluded that the quality of trials was poor. This therapy may be helpful as an adjunctive treatment method in combination with evidence-based recommended treatment. Insufficient data to recommend.

C. Equine-Assisted Therapy. Kemp's et al. (2014) equine therapy was limited to adolescents. Arnon, et al. (2020) developed and piloted an equine-assisted therapy (EAT) with military veterans that had high participant satisfaction and yielded short term benefits in PTSD symptomology and quality of life measures. Wharton et al. (2019) piloted a manualized equine-facilitated CPT with male veterans with PTSD (n=27) and found that Posttraumatic Check List scores improved significantly as did Trauma-Related Guild Inventory scores. Although interest in equine therapy is high, there is a lack of empirical support beyond pilot studies. At this point EAT should be considered as adjunctive treatment for trauma and PTSD and may be useful for individuals resistant to more established evidence-based modalities. Recommend with qualification, or not as primary treatment.

D. MAP™ This program training combines meditation with aerobic exercise and is purported to significantly reduce post-traumatic cognitions and ruminative thoughts in women with a history of sexual violence (n=105) and enhanced their measure of self-worth (Shors et al., 2018). VA/DoD (2017) and APA (Bufka et al., 2020) did not review for treatment for PTSD. MAPTM is branded by Dr. Shors, and replication studies have not been conducted. Insufficient data to recommend.

E. Meditation. Meditation as an adjunct treatment for SA victims has been used in various forms in combination with aerobic exercise (Shors et al., 2018), music therapy (Story et al., 2017), and yoga (Crews et al., 2016; Kelly et al., 2017; Mitchell et al., 2014; Nuerkich et al., 2019; Rosenbaum, et al. 2015; Van der Kolk et al., 2014). A specific form of meditation, compassion meditation (CM) has been studied and found to reduce PTSD symptoms (Lang et al. 2012). Compassion meditation is the practice of cultivating the ability to extend and sustain compassion toward self and others (Lang et al., 2019). Cognitively based compassion manualized group training (CBCT) has been developed for veterans and has shown positive results with reduced PTSD symptoms (Lang et al., 2019; Lang et al., 2020). Meditation may be helpful for victims of SA but should not be used as a "stand alone" treatment. It should be utilized with other evidence-based modalities. Recommend with qualification, or not as primary treatment.

F. Trauma Sensitive Yoga. Yoga has three principle components: breathing exercises, postures and mindfulness meditation. Based on participants' feedback, Crews et al. (2016) concluded that the use of trauma-sensitive yoga is an effective healing method for victims of SA. Quantitative scale measures were not used. Since only one study was specific for SA victims, other studies were explored for evidence. Van der Kolk's et al. (2014) ten week trauma sensitive yoga (n=64) with women with treatment resistant chronic PTSD found improved affect tolerance and decreased PTSD symptomology compared to controls, with 52% of the yoga group no longer meeting PTSD criteria compared to 21% in the control. Interestingly, the control group relapsed after initial improvement. Yoga improved functioning by helping participants tolerate physical and sensory experiences associated with fear and helplessness, and increase emotional awareness and affect tolerance (Kelly, et al., 2017; Van der Kolk, et al., 2014; Quiñones, et al., 2015).

In a preliminary mixed-methods case series study (n=3), Neurkirch, et al. (2019) utilized trauma-sensitive yoga and found increases in interoceptive awareness and decreases in anxiety, depression, PTSD and stress symptoms. Interestingly, two out of the three participants identified sexual trauma. A recent randomized controlled treatment (Davis et al., 2020) study (n=209) compared a holistic yoga program to a wellness lifestyle program and found reduced scores at treatment end, but not at seven months follow-up. This study was not specific to trauma-sensitive yoga, which could account for the poor permanence of this intervention. Finally, a Kripalu-based yoga intervention RCT study (Mitchell et al., 2014) with women (n=38) found decreases in re-experiencing and hyperarousal symptoms, with small to moderate between group effect sizes. These findings combined with Rosenbaum's et al. (2015) conclusions adds to the growing evidence strongly supporting trauma-sensitive yoga as an effective intervention for PTSD in addition to standard treatments. Recommend in conjunction with other evidence-based therapies.

PHARMACOLOGICAL THERAPIES

Because of the lack of psychopharmacology studies specific to SA trauma, the literature was reviewed for medication studies for PTSD symptoms related to trauma. The VA/DoD (2017) concluded that gains from psychotherapy are more long-lasting than those from medications. Additionally, a systematic review and meta-analyses of psychotherapy versus pharmacotherapy found that trauma focused psychotherapy over non-trauma-focused psychotherapy or medication was effective as first line interventions with mediCations as second line treatment (Lee et al., 2016). There are several classes of psychotropic medications used to treat PTSD symptoms: antidepressants, atypical antipsychotics, mood stabilizers, anti-anxiety, and others (Stahl, 2017). Psychotropic medications often temporarily alleviate PTSD symptoms, assisting patients to do the difficult work of psychotherapy, including exposure therapy (Carlat & Berlin, 2017).

When reviewing services related to SA trauma, psychotropic medications are generally used in conjunction with therapy. A common treatment plan for PTSD symptoms is therapy with psychotropic medications for PTSD symptoms, or comorbid mental illness.

i. Antidepressants. Symptoms of hyperarousal and nightmares are addressed by antidepressants, particularly the selective serotonin reuptake inhibitor (SSRI) category. SSRIs alleviate many of the core symptoms of PTSD (Carlat & Berlin, 2017). Sertraline (Zoloft) and paroxetine (Paxil) are the only FDA approved drugs for PTSD (Stahl, 2017) and are recommended by the VA/DoD (2017). Another SSRI, fluoxetine (Prozac) is recommended by VA/DoD (2017) as first line treatment for PTSD. Venlafaxine (Effexor), a non-SSRI, is also efficacious (Carlat & Berlin 2017) and listed as an additional antidepressant option for first line treatment by the VA/DoD for trauma (2017).

ii. Atypical Antipsychotics. Atypical antipsychotics in low doses as adjunctive to other medications is another classification of medications used to treat flashbacks, anxiety, depression, and insomnia symptoms (Carlat & Berlin, 2017; Stahl, 2017). Overall, the weight of evidence is positive for using atypical antipsychotics (Berger et al. 2009; Carlat & Berlin, 2017; Krystal et al. 2011). With atypical antipsychotics, there is concern about side effects related to this class of medications with potential metabolic syndrome, extrapyramidal symptoms, tardive dyskinesia (long-term use), and neuroleptic malignant syndrome (rare). Because of the potential for dangerous side effects, the VA/DoD (2017) erred on the side of caution and discourages use of atypical antipsychotics.

iii. Benzodiazepines. Since many victims of trauma present with prominent anxiety symptoms, benzodiazepines are commonly prescribed for short term therapy in low dose use to treat anxiety. Benzodiazepines have poor evidence for long term treatment of PTSD related anxiety and are fraught with the high risk of being abused (Stahl, 2017). Additionally, benzodiazepine use may contribute to emotional numbing related to PTSD and prevent integration of the traumatic event (Carlat & Berlin, 2017). Therefore, benzodiazepines should be used very cautiously, and assessed frequently by the prescriber.

iv. Mood Stabilizers. Mood lability often accompanies the PTSD symptom of hyperarousal and are often treated with mood stabilizer medications. Results on effectiveness of these medications, especially as monotherapy post-trauma are mixed (Carlat 2017; Davis et al., 2008). A major limitation is that most studies have been on combat veterans with no specific studies on SA victims.

v. Non-benzodiazepines. Hypervigilance and activation symptoms have been successfully treated with beta blockers, propranolol (Inderal) or alpha-2-antagonist clonidine (Catapres) that work to reduce over activation in the central nervous system (Stahl, 2017). These medications have been well-studied and are effective (Carlat & Berlin, 2017; Guiana, et al., 2015; Stahl, 2017).

vi. Sleep Aids. Disrupted sleep is a frequent PTSD complaint and often does not fully improve with psychotherapy or antidepressant treatment. PTSD symptoms worsen with insomnia. Van Liempt et al. (2006) found that mirtazapine, or a sedating anti-depressant tricyclic, doxepin (Sinequan) can be effective as monotherapy or in combination with a SSRI and effective to reduce sleep disruption. Benzodiazepines in low doses for short periods of time to treat insomnia are often utilized (Carlat & Berlin, 2017; Riemann et al., 2015; Stahl, 2017).

Nightmares, a re-experiencing trauma symptom, often disrupts sleep. Prazosin (Minipress), an alpha-1- antagonist is often utilized to treat PTSD associated nightmares and has been shown to be efficacious (Carlat & Berlin, 2017; Van Liempt et al. 2006). Additionally, Van Liempt's et al. (2006) large meta- analysis of sleep disruption in PTSD found several medications to also be effective: mood stabilizers (gabapentin, topiramate), other classes of antidepressants (imipramine, mirtazapine, phenelzine), multiple atypical antipsychotics, and non-benzodiazepine antianxiety (buspirone and clonidine).

vii. Other Classes: Hydrocortisone, Ketamine & Herbal Products. Recently, hydrocortisone immediately post-trauma has been examined as a treatment for reducing PTSD symptoms. One double blind study (Howlett & Stein, 2016) found that administering hydrocortisone in recent trauma victims was effective in reducing PTSD symptoms. This treatment is understandable from a pathophysiology perspective but needs more studies to demonstrate efficacy.

Ketamine (Spravato) nasal spray or infusion is now FDA approved for treatment resistant depression (Stahl, 2017) and is available in some specialized clinics. Feder et al. (2014) utilized a Ketamine infusion that was effective to reduce PTSD symptoms and comorbid depressive symptoms without significant dissociation. More studies are needed to see if the preliminary effects are long lasting for amelioration of PTSD symptoms.

There is insufficient evidence about fish oil, inositol, N-acetyl cysteine, and serine for PTSD symptoms (Web MD, 2020). A basic literature review on Medline found no studies that demonstrated any herbals were effective to treat PTSD symptoms.

THERAPY IN CONJUNCTION WITH MEDICATIONS

One case study was identified of a SA victim receiving paroxetine (Paxil) with EMDR resulting in positive mental health outcomes. (Nijdam et al., 2013). This combination was likely successful as paroxetine is FDA approved for PTSD symptoms and EMDR is an evidence-based therapy treatment.

MDMA with Assisted Therapy. 3,4-methylenedioxy-methamphetamine (MDMA) is a synthetic drug that alters mood and perception and has been used in conjunction with exposure therapy for trauma victims. Small RCT studies pairing individual psychotherapy with MDMA found improvements in PTSD symptomology (Bouso's et al. 2008).

The use of MMDA with exposure therapy has reappeared on the therapeutic intervention scene as a potential effective trauma treatment. Mithoefer's et al. (2013) positive results with MMDA and exposure therapy was recently given a breakthrough therapy designation (BTD) for PTSD from the Food and Drug Administration (FDA) resulting in rapid review for larger clinical trials. MDMA is administered with direct observation in conjunction with psychotherapy in up to three monthly, eight-hour sessions. Feduccia's et al. (2019) clinical trial found that MDMA was more effective than Paroxetine or Sertraline, with lower drop-out rates. This BTD status has resulted in the Multidisciplinary Association for Psychedelic Studies (MAPS) to move MMDA with therapy to phase 3 trials, with a planned submission for seeking FDA approval in 2021 (Feduccia et al., 2019). If this PTSD treatment is FDA approved in the future, Busso's (2008) study supports the use of this combined approach specifically for SA victims. One cautionary note, if MDMA assisted therapy does get FDA approval, care should be taken to ensure that therapists and prescribers have been properly trained.

RECOMMENDATIONS ON PSYCHOTROPIC MEDICATIONS

Except for MMDA, psychotropic medications are recommended based on clinician assessment of specific medication usefulness to an individual's recovery process, especially in combination with evidence-based therapeutic interventions.

SUMMARY ON RECOMMENDATIONS

See Table 4 below for the full summary on recommendations.

Table 4

Therapeutic Interventions and Recommendations

Recommendation Level	Description of Recommendation Level	Types of therapy or treatment
Psychotherapy		
Strongly Recommend	Evidence from multiple studies clearly supports this treatment modality.	Cognitive behavioral therapy (CBT)– but not brief, Trauma focused CBT (TF-CBT), Cognitive processing therapy (CPT), Eye movement desensitization and reprocessing (EMDR), Narrative Exposure Therapy (NET), Prolonged exposure (PE)
Recommend	Overall evidence suggests that the treatment modality produces positive results.	Brief eclectic psychotherapy (BEP), Acceptance & commitment therapy (ACT) in conjunction with other evidence-based therapies
Recommend with qualification, or not as primary treatment	There is emerging evidence that the treatment modality may be efficacious, or the treatment modality may have positive outcomes when combined with a recommended treatment	DBT with Prolonged Exposure (PE), Interpersonal Psychotherapy (IPT), Present centered therapy (PCT), Seeking Safety
Recommend in conjunction with other evidence-based therapies	While not a primary treatment modality, evidence supports that this treatment may enhance outcomes for victims.	Acceptance & commitment therapy (ACT), Feminist therapy, Psychodynamic therapy
Not recommended unless therapy specified		Psychotherapy
Insufficient Data to Recommend	Additional research is needed before this modality can be recommended.	Control mastery psychotherapy, Dialectical behavior therapy (DBT)
Not recommend	The research clearly delineates that this treatment modality does not produce positive treatment outcomes for the victim.	Emotional disclosure therapy (EDT), Exposure response prevention (ERP), Hypnotherapy, Image rehearsal therapy (IRT), STAIR & narrative therapy, Supportive psychotherapy

Complementary Treatments Research does not support complementary practice as primary treatment of PTSD but acknowledges that complementary treatments are safe and effective for adults with PTSD. The following treatments may be helpful as adjunctive therapies.		
Recommend with qualification, or not as primary treatment	There is emerging evidence that the treatment modality may be efficacious, or the treatment modality may have positive outcomes when combined with a recommended treatment	Aerobic exercise, Equine facilitated therapy, Meditation
Recommend in conjunction with other evidence-based therapies	While not a primary treatment modality, evidence supports that this treatment may enhance outcomes for victims.	Trauma sensitive yoga
Insufficient Data to Recommend	Additional research is needed before this modality can be recommended.	Art therapy, Drama therapy, Music therapy, MAP™
Psychopharmacology		
Recommended based on clinician assessment	Overall evidence suggests that the treatment modality produces positive results.	Antidepressants, Antipsychotics, Benzodiazepines, Mood stabilizers, Non-benzodiazepines, Sleep agents
Not recommended	3,4-Methylenedioxy methamphetamine (MDMA) is not FDA approved.	MDMA with psychotherapy

DISCUSSION AND RECOMMENDATIONS

The goal of this report was to inform key stakeholders including practitioners, organizations, victim/patients/survivors, and Utah Office for Victims of Crime of the current state of the science in determining best therapeutic options. Adolescent and adult sexual assault victims have improved healing and reduced long-term negative health outcomes if they receive appropriate, evidence-based therapeutic interventions. A multitude of therapeutic options exist to address sexual assault trauma, but therapeutic guidelines are not universally established. In lieu of prescribed therapeutic guidelines, practitioners should evaluate the strength of the evidence and individual patients' or victims' needs. In addition, affected individuals should have a voice in determining therapeutic plans following consultation with practitioners and experts. As our knowledge expands about brain and body processes following trauma, more treatments will be developed to reduce trauma responses and promote healing (Van der Kolk, 2014). In synthesizing the evidence, one must remember that many proposed therapies lacking strong evidence may be helpful to victims.

In conclusion, we propose the following recommendations for the use of this report by Utah Office for Victims of Crime:

1) Establish a working group of experts to explore and discuss the findings of this report and application to therapeutic funding decisions.

2) Develop protocols to establish that clinicians are specifically trained and certified, if applicable, to deliver the therapeutic interventions.

3) Create guidelines on psychotropic medications to encourage involvement of psychiatric prescribers: psychiatrist or advanced practice registered nurse who specializes in psychiatric mental health.

4) Institute protocols for funding reimbursement for psychotropic medications as they are essential for recovery; especially for depression, sleep, and anxiety symptoms.

5) Formulate an algorithm to appropriately screen victims for suicidality and facilitate funding approval as interventions may be best effective with early implementation (Appendix C, Figure 3).

6) Ensure funding for evidence-based treatments for trauma or PTSD for SA victims as per summary of recommendations (Refer to Table 4 for therapy recommendations).

7) Consider methods of dissemination on evidence-based treatment options to the community including practitioners, organizations, and survivors.

CONCLUSION

Evidence-based therapeutic interventions for SA victims should be a priority in Utah to ensure individual recovery, reduce societal burden, and improve public health. As a key stakeholder in the funding of therapeutic interventions for SA victims, Utah Office for Victims of Crime positively impacts victims' healing and recovery.

Appendix A

Outcomes Scales and Assessment Tools for SA Therapies - 84 Tools

Category	Measure	Studies
Past Events	Autobiographical Memory Questionnaire	Shors et al. 2018
	Sexual Experiences Survey – Short Form Perpetration (SES-SFP)	Anderson et al, 2010; Orchowski et al., 2009; Littleton, et al., 2012; Littleton, et al. 2016
	Stressful Life Events Screening Questionnaire (SLESQ) Lifetime exposure	Littleton, et al., 2012; Littleton, et al. 2016
	Childhood Unwanted Sexual Events (CHUSE)	Bicanic et al., 2013
	Standardized Assault Interview (SAI)	Foa, et al., 2006
PTSD Symptoms	Severity of Symptoms Scale for PTSD (PSS-I-5)	Bouso et al., 2008
	Trauma Symptom Checklist-40 (TSC-40)	Burrows et al., 2013
	Trauma Symptom Inventory (TSI)	Richmond et al., 2013
	Modified PTSD Symptom Scale – Self-report (MPSS-SR)	Belleville et al., 2018
	Harvard Trauma Questionnaire (HTQ^{19})	Bass et al., 2013
	Trauma Symptom Inventory (TSI)	Poon et al., 2009
	Structured Clinical Interview for DSM- IV & V	Belleville et al., 2018; Billette et al., 2008 Foa et al., 2006; Shors et al. 2018; Littleton, et al., 2012; Littleton, et al. 2016; Nijdam et al., 2013
	MINI International Neuropsychiatric Interview (MINI)	Nixon et al., 2016
	Life Events Checklist for DSM-5 (LEC-5)	Markowitz et al., 2017
	PTSD Checklist for DSM-5 (PCL-5)	Anderson, et al., (2019); Suris et al., 2013; Story et al., 2017; Baggett et al., 2017; Cloitre et al., 2016
	PTSD Symptoms Scale Interview (PSS-I)	Foa, et al., 2006; Littleton, et al., 2012; Littleton, et al. 2016; Billette et al., 2008
	Clinician-Administered PTSD scale for DSM-5 (CAPS-5)	Belleville et al., 2018; Suris et al., 2013; Markowitz et al., 2017; Nixon et al., 2016; Mott et al., 2012

	PTSD Checklist Military Version (PCL-M)	Mott et al., 2012
	Posttraumatic Diagnostic Scale (PDS-5)	Padmanabhanunni, et al., 2013
Self-report symptoms	Symptom Checklist 90-Revised (SCL-90-R)	Bicanic et al., 2013; Pole & Bloomberg-Fretter 2006; Wilson et al., 2010
	Posttraumatic Stress Disorder Scale (PDS)	Payne et al., 2009
Avoidance	Acceptance & Action Questionnaire AAQ-2	Burrows et al., 2013; Hiraoka et al., 2016
Cognitions	Posttraumatic Cognitions Inventory (PCTI)	Shors et al. 2018; Littleton, et al., 2012; Nixon et al., 2016; Mott et al., 2012; Payne et al., 2009
Dissociation	Dissociative Experiences Scale (DES)	Abbas et al., 2013
Fear	Veronen-Kilpatrick Modified Fear Survey (VK-MFS)	Littleton, et al., 2012
	Modified Fear Scale (MFS III)	Bouso et al., 2008
Functional Impairment	Impact of Events Scale (IES-R)–	Anderson et al., 2010; Tarquinio et al., 2012; Nijdam et al., 2013; Poon, 2009; Wilson et al., 2010
	Weiss Functional Impairment Scale (WFIRS)	Bass et al., 2013
	Maladjustment Scale	Bouso et al., 2008
Guilt	Trauma Related Guilt Inventory (TRGI)	Payne et al., 2009
Sleep	Nightmare Distress Questionnaire (NDQ)	Belleville et al., 2018
	Pittsburgh Sleep Quality Index (PSQI)	Belleville et al., 2018
Adolescent	Child Behavior Checklist (CBCL) - Parent	Kemp et al., 2014
	Conflict Tactics Scale – Revised (CTS-R) Parents and child	Billette et al., 2008
	African Youth Psychosocial Assessment – (AYPA)	O'Callaghan et al., 2013
	Adolescent Perceived Events Scale - APES	Orchowski et al., 2009
	UCLA PTSD Reaction Index	O'Callaghan et al., 2013
	Trauma Symptom Checklist for Children (TSCC)	Bicanic et al., 2013; Kemp et al., 2014
	Child Behavior Checklist (CBCL)	Bicanic et al., 2013

Depression	Beck Depression Inventory (BD-11)	Bouso et al., 2008; Foa, et al., 2006; Kemp et al., 2014; Nixon et al., 2016; Billette et al., 2008; Hiraoka et al., 2016; Padmanabhanunni et al., 2013; Payne et al., 2009; Richmond et al., 2013; Wilson et al., 2010
	Center for Epidemiologic Studies Depression Scale (CES-D)	Littleton, et al., 2012; Littleton, et al. 2016
	Children's Depression Inventory (CDI)	Kemp et al., 2014
	Quick Inventory of Depressive Symptomatology (QIDS)	Suris et al., 2013
	Ruminative Responses Scale (RRS)	Shors et al. 2018
Suicidal Ideation	Beck Scale for Suicide Ideation (BSI)	Littleton et al., 2012
	Scale for Suicide Ideation (SSI)	Littleton et al., 2016
Anxiety	Beck Anxiety Inventory (BAI)	Foa, et al., 2006; Kemp et al., 2014; Payne et al., 2009; Richmond et al., 2013
	State-Trait Anxiety Inventory (STAI)	Bouso et al., 2008
	Four Dimensional Anxiety Scale (4DSQ)	Littleton, et al., 2012; Littleton, et al. 2016
	Yale-Brown Obsessive Compulsive Scale (YBOCS)	Nijdam et al., 2013
	Anxiety Disorder Interview Schedule	Wilson et al., 2010
Anxiety & Depression	Hopkins Symptom Checklist (HSCL)	Bass et al., 2013
	Hospital Anxiety and Depression Scale (HADS)	Nijdam et al., 2013
Treatment evaluation	Credibility and Expectancy Questionnaire	Nixon et al., 2016
	Expectancy of Therapeutic Outcome Questionnaire	Foa, et al., 2006
	Penn Helping Alliance Questionnaire (HAq-II)	Bouso et al., 2008
	Satisfaction with Therapy and Therapist-Revised (STTS-R)	Littleton, et al. 2016
	Working Alliance Inventory – Short Form (WAI-SR)	Littleton, et al. 2016; Nixon et al., 2016
	White Bear Suppression Inventory (WBSI) Thought suppression	Burrows et al., 2013
	Therapeutic Alliance Scale	Bouso et al., 2008

	Usefulness of Techniques Inventory (UTI)	Foa, et al., 2006
	Outcome Questionnaire-45 (OQ-45)	Anderson et al, 2010; Orchowski et al., 2009
	Therapeutic Alliance Scale	Bourso et al., 2008
Intimacy & Interpersonal	Fear of Intimacy Scale	Billette et al., 2008
	Inventory of Interpersonal Problems (IIP)	Anderson et al, 2010; Pole & Bloomberg-Fretter 2006
	Interpersonal Relationships Questionnaire	Visser et al., 2015
Sexual Satisfaction	Interpersonal Exchange Model of Sexual Satisfaction Questionnaire (IEMSSQ)	Billette et al., 2008
	Global Measure of Sexual Satisfaction (GMSEX)	Billete et al., 2008
Life Quality	Life Orientation Test- revised (LOT-R)	Rocha et al., 2016
	Valued Living Questionnaire (VLQ)	Burrows et al., 2013
	Medical Outcomes Study Health Survey (SF-36)	Belleville et al., 2018
	Maladjustment Scale (MS)	Bouso et al., 2008
Stress Perception	Perceived Stress Scale (PSS)	Rocha et al., 2016
	Positive and Negative Affect Scale (PANAS-SF)	Anderson et al, 2010
	Subjective Units of Distress (SUDS)	Tarquinio et al., 2012
Self-esteem & worth	Rosenberg Self-Esteem Scale (RSE)	Bouso et al., 2008; Visser et al., 2015; Rocha et al., 2016
	The Best Self Scale	Shors et al., 2018
Social Support	Duke-UNC-11 Functional Social Support Questionnaire (FSSQ)	Rocha et al., 2016
	Marital Status Inventory (MSI)	Billette et al., 2008
	Inventory of Social Support in Anxious Situations (ISSAS)	Billette et al., 2008
	Questionnaire on Satisfaction and Perceived Changes (QSPC)	Billette et al., 2008
Other Scales		
Disability	World Health Organization Disability Assessment Schedule	Belleville et al., 2018
Empowerment	Personal Progress Scale- Revised	Richmond et al., 2013
	Hallucinogen Rating Scale (HRS)	Bouso et al., 2008
Medication	UKU Scale of Secondary Effects	Bouso et al., 2008
Resilience	Resilience Scale (RS^{TM})	Rocha et al., 2016

Appendix B

Therapeutic Intervention Studies on Sexual Assault Trauma,

Other Trauma, and Recommendations

	Sexual Assault Specific Evidence	Trauma Evidence	Recommendation
Psychotherapy			
Acceptance & commitment therapy (ACT)	Burrows et al., 2013[3]; Hiraoka et al., 2016[3]	VoA/DoD, 2017 – Insufficient evidence Boals, et al., 2016; Wharton et al., 2019	Recommend in conjunction with other evidence-based therapies
Brief eclectic psychotherapy (BEP)	No sexual assault trauma evidence found.	APA (Bufka et al., 2020) – Conditionally approve VoA/DoD, 2017 – Sufficient evidence Nijdam et al., 2018	Recommend
Cognitive therapy (CBT & CPT)	Padmanabhanunni et al., 2013[3]; Payne et al., 2009[3]	APA (Bufka et al., 2020) – Strongly recommend VoA/DoD, 2017 – Sufficient evidence	Strongly recommended
Cognitive behavioral therapy (CBT)/ Trauma Focused (TF-CBT)	Belleville et al., 2018[1]; Bicanic et al., 2013[2]; Billette et al., 2008[3]; Foa et al., 2006[1]; Littleton et al., 2012[2]; Littleton et al., 2016[2]; Nixon et al., 2016[2]; O'Callaghan et al., 2013[1]	APA (Bufka et al., 2020) – Strongly recommend VoA/DoD, 2017 – Sufficient evidence Simon et al., 2019	Brief CBT not recommended. TF-CBT strongly recommended
Cognitive processing therapy (CPT)	Baggett et al., 2017[3]; Bass et al., 2013[1]; Mott et al., 2012[3]; Suris et al., 2013[1]; Wilson et al., 2010[3]	APA (Bufka et al., 2020) – Strongly recommend VoA/DoD, 2017- Strongest evidence	Strongly recommend
Control mastery psychotherapy	Pole & Bloomberg-Fretter 2006[3]	Lacking statistical evidence	Insufficient data to recommend
Dialectical behavior therapy (DBT)	Mott et al., 2012[3]	Harned et al., 2014; Linehan, 1993; Meyers et al., 2017	Insufficient data to recommend
DBT with Prolonged exposure (PE) therapy	No sexual assault trauma evidence found.	Harned et al., 2014, Meyers et al., 2017	Recommend with qualification, or not as primary treatment.

Emotional disclosure therapy (EDT)	Anderson et al., 2010[1] Orchowski et al., 2009[1]	Lacking statistical evidence	Not recommended
Eye-movement desensitization and reprocessing (EMDR)	Nijdam et al., 2013[3]; Rocha et al., 2016[3]; Tarquinio et al., 2012[2]	APA (Bufka et al., 2020) – Conditionally recommend VA/DoD, 2017 - Strongest Evidence Nijdam et al., 2018; Shaprio, 2014; Tarquinio et al., 2012; WHO, 2013	Strongly recommend
Exposure response prevention (ERP)	Nijdam et al., 2013[3]	Rauch & Rothbaum, 2016	Not recommended
Feminist therapy	Richmond et al., 2013[3]	Brown, 2018; Carr & McKernan, 2015	Recommended in conjunction with other evidence-based therapies
Hypnotherapy	Poon, 2009[3]; Rocha et al., 2016[3]	VA/DoD, 2017 - Insufficient evidence Rotaru, & Rusu, 2015	Not recommended
Image rehearsal therapy (IRT)	Belleville et al., 2018[1]-(IRT & CBT); Korese et al, 2006[3]	Lacking statistical evidence	Not recommended
Interpersonal psychotherapy (IPT)	No sexual assault trauma evidence found.	VA/DoD (2017) - Recommend Bleiberg & Markowitz, 2019	Recommend with qualification or not as primary treatment
Narrative exposure therapy (NET)	Mott et al., 2012[3]	APA (Bufka et al., 2020) – Strongly recommended VA/DoD, 2017- Sufficient evidence Lely, et al. 2019	Strongly recommended
Present centered therapy (PCT)	Suris et al. 2013[1]	VA/DoD (2017)- Recommend with individual Belsher et al., 2019	Recommend with qualification, or not as primary treatment
Prolonged exposure (PE) therapy	Baggett et al., 2017[3]; Markowitz et al., 2017[2]	APA (Bufka et al., 2020) – Strongly recommend VA/DoD, 2017 - Strongest evidence	Strongly recommended
Psychodynamic therapy	Abbas et al., 2013[3]; Barglow, 2014[3]; Fahs, 2011[3]	VA/DoD (2017) - Insufficient evidence	Recommend in conjunction with other evidence-based therapies

Psychotherapy	Bouso et al., 2008[1] with MMDA (*n*=6); Koelsch, 2007[3] with medication (*n*=1)	Lacking statistical evidence	Not recommended unless therapy is specified.
Seeking Safety	No sexual assault trauma evidence found.	APA (Bufka et al., 2020) – Insufficient Evidence	Recommend with qualification, or not as primary treatment
STAIR and Narrative therapy	Cloitre et al., 2016 [3]	VA/DoD (2017) - Insufficient evidence	Not recommended
Supportive Psychotherapy	No sexual assault trauma evidence found.	VA/DoD, 2017 - Insufficient evidence	Not recommended
Complementary Treatments			
Research does not support complementary practice as primary treatment of PTSD, but acknowledges that complementary treatments are safe and effective for adults with PTSD. The following treatments may be helpful as adjunctive therapies.			
Aerobic exercise	Shors' et al., 2018[1]	Hegberg, et al. 2019; Rosenbaum et al., 2015	Recommend with qualification, or not as primary treatment
Art therapy	Visser et al. 2015[2]	Baker et al., 2018	Insufficient data to recommend
Drama therapy	Hung 2010[2]	Baker et al., 2018	Insufficient data to recommend
Equine facilitated therapy	Kemp, 2014[2]	Arnon et al., 2020; Wharton et al., 2019	Recommend with qualification, or not as primary treatment
MAP™	Shors, et al., 2018[1]	Lacking unbranded statistical evidence.	Insufficient data to recommend
Meditation	Shors, et al., 2018[1]	Lang et al., 2012; Lang et al., 2019; Lang et al., 2020	Recommend with qualification, or not as primary treatment
Music therapy	Story et al., 2017[2]	Baker et al., 2018	Insufficient data to recommend
Trauma Sensitive Yoga	Crews et al 2016[2]	Kelly et al., 2017; Mitchell et al., 2014; Nuerkich et al., 2019; Rosenbaum, et al. 2015; Van der Kolk et al., 2014	Recommend in conjunction with other evidence-based therapies
Psychopharmacology			
Antidepressants	Koelsch, 2007[3]; Nijdam et al., 2013[3]	VA/DOD (2017) – recommend antidepressant	

		APA (Bufka et al., 2020) antidepressants as adjunct	Recommended based on clinician assessment
Antipsychotics	Koelsch, 2007[3]	Carlat & Berlin, 2017; Stahl, 2017; Krystal et al. 2011 VA/DOD (2017) – discourages use	
Benzodiazepines	No sexual assault trauma evidence found.	Carlat & Berlin, 2017; Stahl, 2017	
Mood stabilizers	No sexual assault trauma evidence found.	Carlat 2017; Davis et al., 2008	
Non-benzodiazepines	No sexual assault trauma evidence found.	Carlat & Berlin, 2017; Guiana, et al., 2015; Stahl, 2017	
Sleep Agents	No sexual assault trauma evidence found.	Carlat & Berlin, 2017; Riemann et al., 2015; Stahl, 2017; Van Liempt et al. 2006	
MDMA	Bouso et al, 2008[1]	MDMA is not FDA approved.	Not recommended

[1]Randomized clinical trial

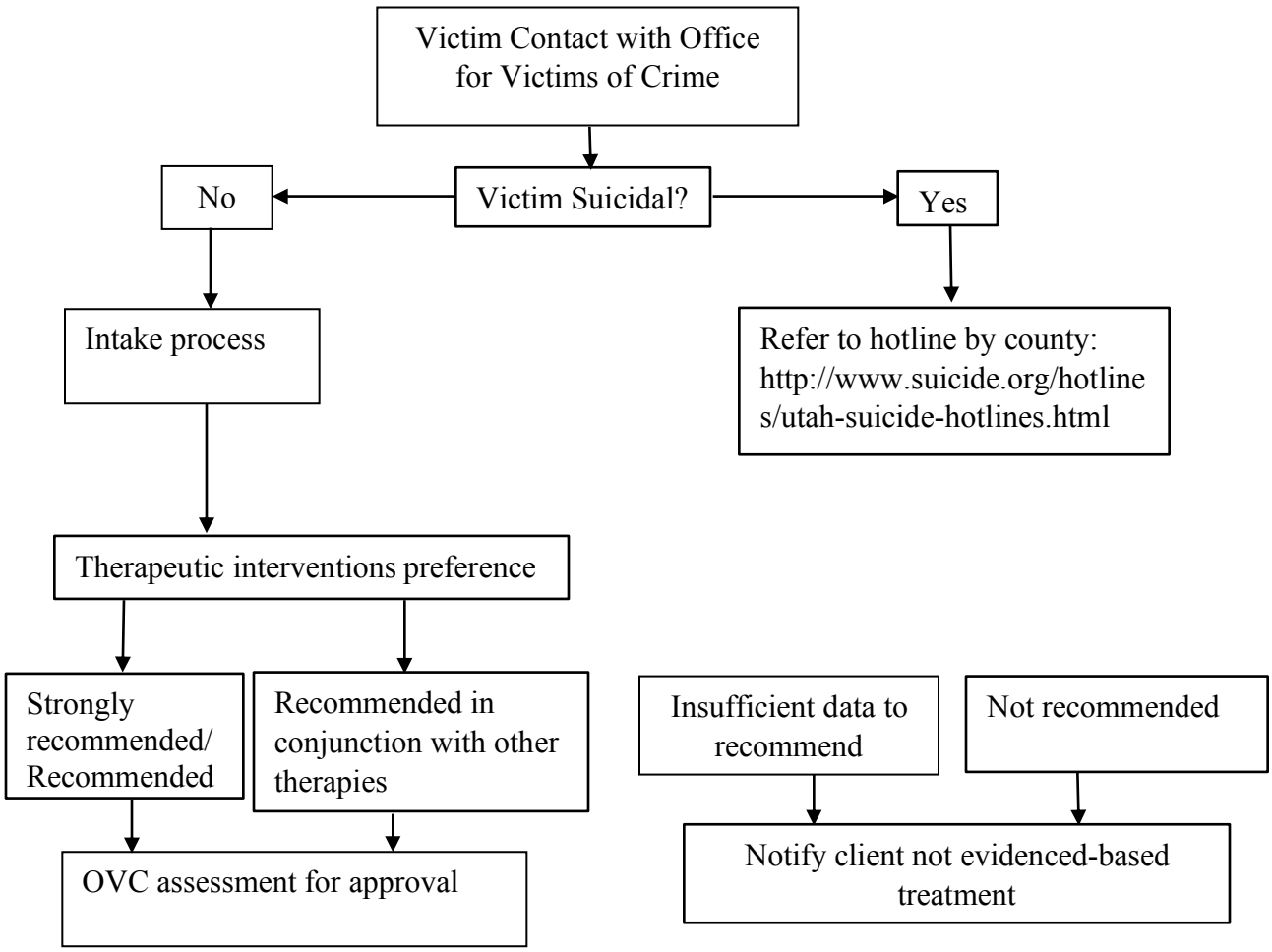
[2]Quasi-experimental study

[3]Case study

Appendix C

Figure 3

Example of Algorithm



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