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ORIGINAL PAPER

A Review of Trauma Specific Treatments (TSTs) for Post-Traumatic Stress Disorder (PTSD)

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Abstract

Trauma is a significant public health concern that has widespread and adverse effects on people. There is a high prevalence of trauma and PTSD in general populations, and that prevalence greatly increases among the clinical populations that social workers serve. To address the hidden epidemic of trauma, there are various trauma-specific treatments for PTSD. Scholars have highlighted a critical use of research evidence as a starting consideration in clinical decision-making and named the necessity to map out effective interventions according to population and types of trauma, including both conventional and non-conventional treatments. A rapid systematic review was conducted to fill this gap and found thirty-four empirically supported studies, including nineteen conventional and seven non-conventional treatment approaches for PTSD. The included conventional therapies are cognitive behavioral therapy (CBT), sleep-specific CBT, trauma-focused CBT, internet CBT, virtual reality exposure therapy, prolonged exposure, narrative exposure therapy, cognitive processing therapy, eye movement desensitization and reprocessing (EMDR), hypnotherapy, emotion focused therapy, skills training in affect and interpersonal regulations (STAIR), interpersonal psychotherapy (IPT), dialectical behavioral therapy (DBT), seeking safety, trauma incident reduction, accelerated resolution therapy (ART), metacognitive therapy, and imaginary rehearsal therapy. The non-conventional approaches included are yoga, physical activities, emotion freedom technique, acupuncture, mantram repetition program, mind–body therapy, and music therapy. We further explored the therapy content, population, type of trauma, outcomes, and strengths/limitations under each treatment to guide clinicians to select the best practice for idiosyncratic clients. Lastly, we discussed limitations of the current review, clinical considerations in selecting empirically supported treatment for PTSD and future research implications to guide clinical social workers.

Keywords Post-Traumatic Stress Disorder (PTSD) · Trauma-specific treatments (TSTs) · Psychological treatment for trauma · Conventional versus non-conventional psychotherapies · Clinical social work practice

Trauma has widespread and adverse effects on people globally. An American epidemiology study documented that 90% of Americans reported a lifetime exposure to traumatic experiences and 8% reported a lifetime prevalence of PTSD (Kilpatrick et al., 2013). Trauma and its corresponding impacts on health has been recognized as 'a hidden epidemic' that compromises individuals' physical and mental health as well as interpersonal and social functions (Lanius et al., 2010). Social work scholars note that there is a high prevalence of trauma and PTSD in general populations, and that prevalence greatly increases among the clinical populations that social workers serve (Keely & Lee, 2018). To address the detrimental impacts of trauma, various Trauma-Specific Treatments (TSTs) have been utilized across mental health services (Keesler, 2020; DeCandia et al., 2014). TSTs refer to "prevention, intervention, or treatment services that address traumatic stress as well as any co-occurring disorders (including substance use and mental disorders) that developed during or after trauma" (SAMHSA, 2014, p. xix) and include specific treatments with a prescribed set of practices or procedures to address various types of trauma responses.

There have been varied recommendations about best practice in TSTs for PTSD, yet at times these guidelines

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have been conflictual (for details see Hamblen et al., 2019). Lee and Bowles (2020) recently conducted a review on empirically supported treatments (ESTs) for PTSD that discussed conflictual recommendations including trauma-focused versus non-trauma-focused treatments, treatment for children versus adults, PTSD with/without comorbidity, in-person versus online, and individual versus group therapy mode. They found that overall outcomes of each TST varied according to trauma types and population characteristics, and that all active treatments regardless of above conditions were superior to waitlist controls. Therefore, they highlighted the importance of *clarifying which treatment worked for which trauma-type population* in the future research. They also underlined that scholars in evidence-based practice (EBP) emphasized the importance of considering other factors beyond empirical research evidence including, clients' values, preference of treatment, and clinicians' clinical expertise (Drisko & Grady, 2015). To expand the future trauma research agenda, the experts from the ISTSS Guidelines urged that "Systemic research is necessary to determine what kinds of therapeutic strategies and interventions maximize benefits for specific patient population", including the "exploration of novel treatment approaches" that are not conventional (Cloitre, 2012, p. 13). Accordingly, our review aims to fulfill this request by presenting detailed conditions of both conventional and non-conventual TSTs for PTSD and to present a critique of the included research literature for clinical social work practice.

Methods

Our research question is: What therapeutic interventions (both conventional and non-conventional treatments) are effective in treating PTSD for which populations, and for which types of trauma experiences? We conducted a review to map out peer-reviewed literature on treatments for people with PTSD. A Rapid Evidence Assessment process was selected as Grant and Booth (2009) note that it provides a comprehensive review of what is currently established in published literature using traditional systematic review methods in a thorough yet accelerated search. The rapid review search includes limiting particular aspects of the systematic review process, using focused search engine of the topic (e.g. using one database such as PsycInfo rather than multiple databases), focusing the review (e.g. key word search in the titles rather than all areas), and including larger reviews (e.g. including existing scoping reviews). The Rapid Evidence Assessment process was a good fit with our research aim to map out varied TST evidence for PTSD according to population and trauma types.

Following the rapid review procedures by Grant and Booth (2009), we conducted several screening processes to conduct the systematic rapid review as shown in the flow chart in Fig. 1.

Two separate searches of the existing peer-reviewed literature were completed using PsycInfo in the interdisciplinary database of ProQuest. Reflecting the growing literature in trauma scholarship, the first search was completed to find systematic reviews and meta-analyses literature on empirically supported TSTs for PTSD. The second search was completed to find literature on evidence-based individual treatment beyond 'review' articles.

For the first search, the search terms were exclusively in the title for a focused review as follows: ti(Trauma* OR PTSD OR Post-traumatic stress disorder* OR posttraum* OR complex trauma* OR counsel* OR type 1 trauma* OR type 2 trauma*) AND ti(Psychotherap* OR therap* OR treatment* OR couns*) AND ti(systematic review* OR meta-analy*). For the second search, the search terms were again exclusively in the title as follows: ti(PTSD OR Post-traumatic stress disorder* OR posttraum* OR complex trauma* OR type 1 trauma* OR type 2 trauma*) AND ti(Psychotherap* OR therap* OR treatment* OR couns*) AND ti(random* OR controlled clinical trial* OR control group* OR statistical* significan* OR double-blind OR qual* OR quant*) NOT ti(Traumatic brain injur* OR TBI OR brain) NOT ti(HIV OR AIDS). The third author conducted the search from February to April 2019 and the first author cross-checked the search procedures. Both searches used 'all dates' in publication date, which indicated that the search was for all studies on PTSD treatments published until 2019.

The two combined searches yielded a total of 451 articles. The third author independently conducted the screening in all levels and the first author cross-checked the accuracy and addressed any grey areas. First, a title scan was completed, and 322 articles were excluded, according to the exclusion criteria as follows: (1) study focus on medication or medical interventions, Traumatic Brain Injury, non TST; (2) non-empirical studies, corrections or replies; or (3) written in a language other than English. The remaining 124 articles underwent an abstract scan. 75 articles were excluded according to the exclusion criteria or if single-study articles had already been included in a systematic review or meta-analysis. For example, all randomized control trials for CBT were excluded, if the articles had already been included within the CBT systematic reviews and meta-analyses in Search 1. The 49 remaining articles retrieved and reviewed in the full texts, 15 more fell into the exclusion criteria and one duplicate was excluded. Finally, 34 articles (N = 34) were included, reviewed, and synthesized into three categories: (1) Systematic review and/or meta-analysis articles that described an empirically supported treatment (EST) for PTSD (n = 16); (2) Conventional single study articles

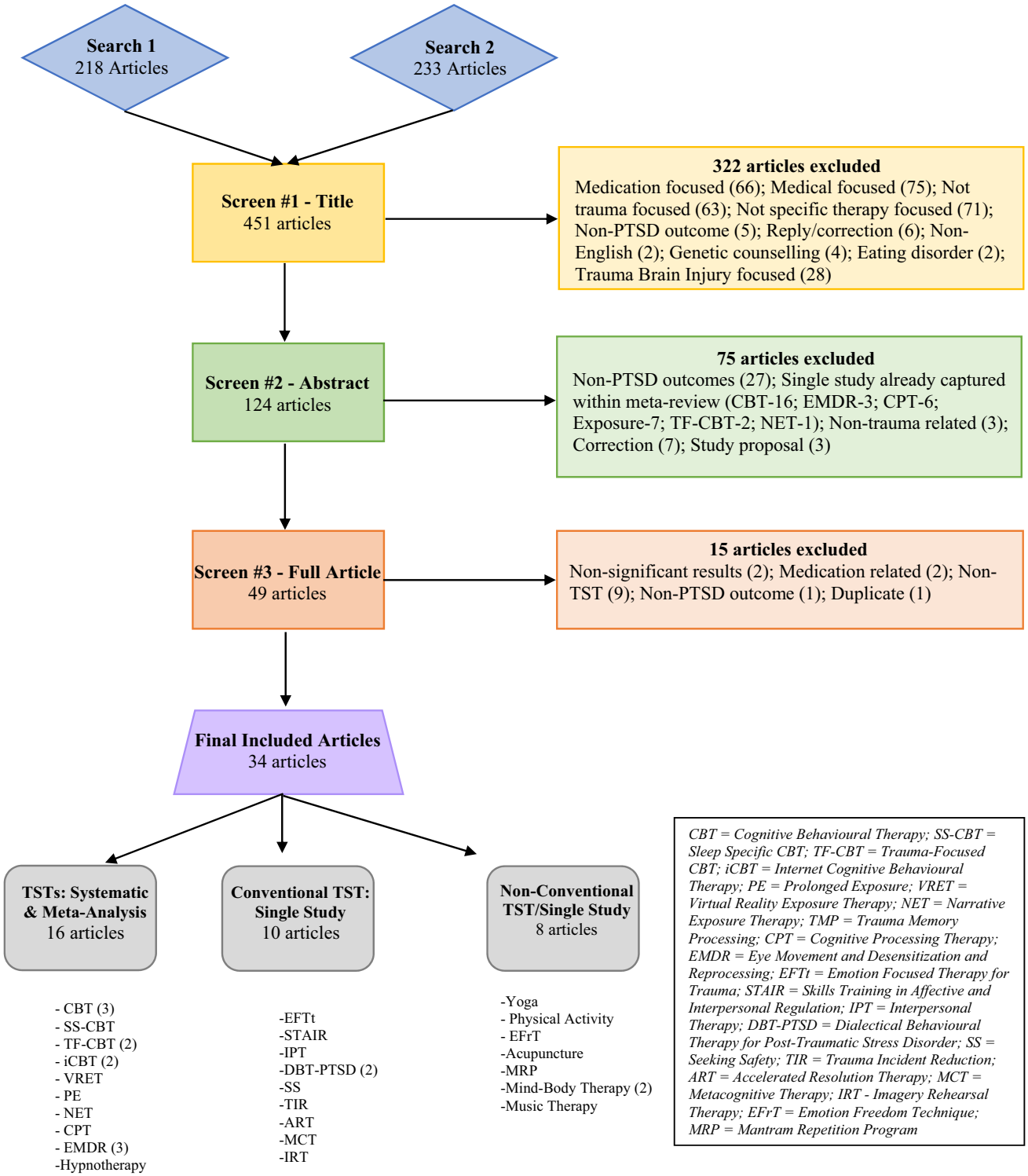

Fig. 1 A Flowchart of Literature Screening Process

that described an EST for PTSD (n = 10); (3) Non-Conventional single study articles that described an EST for PTSD (n = 8). The findings are organized based on these three categories. To answer the research question, content coding was developed a priori including (1) types of therapeutic strategies and intervention, (2) specific population, (3) types of trauma, (4) outcomes, and (5) limitations. The second and third authors independently coded the final

included studies, and the first author cross-checked their coding. Any unclear codes were discussed and resolved.

Results

Empirically Supported Treatments (ESTs) for PTSD: Systemic Review and Meta-Analysis

We identified sixteen articles reporting ten empirical supported trauma therapies in total.

Cognitive Behavioural Therapy (CBT)

One systematic and two meta-reviews were retrieved on CBT for PTSD. Mendes et al. (2008) conducted a systematic review of 23 RCTs on the effectiveness of CBT for adult individuals (n = 1923) who have experienced various types of trauma including non-sexual violence, injuries, natural disasters, female sexual violence, female child abuse, and refugees and veterans with war-related trauma. There was no report on age variances, race and ethnicity and treatment settings. Their definition of CBT was regarded as the combination of cognitive restructuring in cognitive therapy and exposure techniques (CT + ET), cognitive processing therapy (CPT), and Stress Inoculation Therapy (SIT) and ET. The authors found that the diagnostic remission was significantly higher in the CBT group compared to EMDR, but equally effective compared to CT, ET, and supportive counseling (SC) in all aspects of outcome (i.e. remission, dropout, & clinical improvement).

Kowalik et al. (2011) conducted a meta-review of eight RCTs comparing CBT with other treatment groups for the treatment of pediatric PTSD (n = 2641). They found that CBT is more effective than SC or Child Centered Therapy (CCT) in Internalizing, Externalizing, and Total Problems, but not statistically significant. They concluded that, although CBT is the effective treatment for child PTSD, CBT works better to address internalizing symptoms (e.g. depression, anxiety) compared to externalizing symptoms (e.g. rule-breaking, aggression). Thus, the authors recommended combining CBT with other treatment approaches that target externalizing symptoms in response to PTSD. The reported dropout rate ranged 10%–40%. Kayrouz et al. (2018) conducted a meta-review of nine articles to explore the efficacy of CBT amongst adult Arab populations (n = 536). They found that all included studies reported a statistically significant symptom reduction for PTSD, anxiety, and depression at post-treatment, and six of the studies reported a reduction of psychological symptoms which were maintained at a follow-up. The average drop-out rate was 26%, similar to a meta-analysis of dropout rates from CBT in the Western population.

Sleep-Specific CBT (SS-CBT)

Ho et al. (2016) conducted a meta-analysis of eleven RCTs comparing SS-CBT to waitlist for treatment of sleep disturbances among individuals with PTSD (n = 593, mean age = 45.3). The study included mostly veterans, receiving individual therapy, group therapy or a combination of both, for an average of 5.5 weeks. They defined SS-CBT as an intervention encompassing CBT for insomnia (CBT-I), imagery rehearsal therapy (IRT) and exposure, and rescripting and relaxation therapy (ERRT) that directly target sleep disturbances. CBT-I typically entails psychoeducation on sleep hygiene, sleep restriction, stimulus control, and cognitive therapy. When compared to waitlist, they found that SS-CBT was "effective for treating daytime PTSD and depressive symptoms, as well as sleep quality and continuity" (p. 98) and had a relatively low attrition rate (12.8%). They highlighted that the focus on sleep treatment rather than PTSD may be more accessible for hard-to-reach populations such as veterans.

Trauma-Focused Cognitive Behavioural Therapy (TFCBT)

Two studies reviewed the effectiveness of TFCBT on PTSD. Kornør et al. (2008) systematically reviewed seven studies reporting the results of five RCTs examining the effectiveness of TFCBT in preventing the development of chronic PTSD symptoms among adults (n = 257, average age range 29–37) who experienced an acute trauma incident (e.g. exposed to motor vehicle or industrial accidents or assaults) within three months of treatment. The authors defined TFCBT as an intervention delivered in either individual or group mode with a minimum of four sessions which included at least one of following CBT techniques used in treatment: exposure, systematic desensitization, stress inoculation training, cognitive processing therapy, cognitive therapy, assertiveness training, biofeedback, and relaxation training. Compared to SC, the effectiveness of the early intervention of TFCBT was inconclusive due to heterogeneity among the study population, as well as the high attrition rates in the TFCBT group.

To capture the voices of service users, Neelakatan et al. (2018) conducted a qualitative meta-synthesis of eight studies exploring the experience of youth and their caregivers participating in TFCBT (n = 206). Of the eight studies, four studies included youth only, three studies included both youth and caregivers, and one study included children (age 4–6 years) and caregivers. Additionally, half of the included studies described either individual or group TFCBT. In this study TFCBT predominantly incorporated exposure therapy into generic CBT. The TFCBT protocol developed by Cohen et al. (2006) was used in four studies, and the remainder of studies implemented variants of TFCBT including Stepped

TFCBT, CBT Intervention for Trauma in Schools (CBITS), and two other manualised trauma-focused psychotherapeutic group interventions.. The treatment was delivered in various settings including residential shelters for victims of trafficking and exploitation, child protection centres, mental health clinics, schools, and at a therapist's office. Participants had experienced a wide range of traumatic events including physical/sexual abuse, domestic violence, witnessing intimate partner violence, peer violence, accidents, sudden death of a parent, and war. They found that engagement and outcomes were aided by the therapist's expertise, respect for confidentiality, and age-appropriate sensitive pacing. It was also found that youth preferred treatment that was predictable and consistent, thus recommending structured recurring activities, scheduling appointments regularly, and a consistent physical environment to enhance the youth's experience.

Internet CBT (iCBT) and Virtual Reality Exposure Therapy (VRET)

We found two systematic reviews on iCBT for PTSD and one systematic review on VRET. Sijbrandij et al. (2016) conducted a review of 12 RCTs on iCBT for adults diagnosed with PTSD (n = 1306). Seven studies recruited participants with 'mixed types of trauma', while the other studies included trauma associated with being a veteran, pregnancy loss, terrorism and combat, natural disaster, or bereavement. The authors found that iCBT was superior to waitlist and more effective than internet delivered SC (iSC) in both PTSD and depression, and a significant difference in PTSD symptoms was noted when iCBT interventions were therapist-assisted and longer than eight sessions, however this effect did not exist for depression symptoms. They acknowledged that many study participants for internet-delivered interventions were recruited from the community and potentially less symptomatic than individuals who were clinically referred. Accordingly, they hypothesized that iCBT was more effective in community recruited individuals with lower levels of PTSD symptoms.

Lewis et al. (2018) also conducted a systematic review of ten RCTs to assess effects of iCBT for PTSD among adults (n = 720, age 16 & up) who experienced 'mixed traumas,' combat exposure in Afghanistan or Iraq, or female rape survivors. There was no study comparing face-to-face CBT and iCBT. They found very 'low-quality' evidence for effectiveness of iCBT in reducing PTSD symptoms compared to waitlist. Clinical importance of iCBT was reported for the symptom reduction for PTSD, depression and anxiety at post-treatment and only for anxiety at follow up. The dropout rates in iCBT were greater as compared to the waitlist. Compared to iSC, iCBT had no significant difference in PTSD, anxiety, and depression symptoms, dropout rates, or diagnosis of PTSD at post treatment. The authors pointed out that the participants included in the ten studies were predominantly white, employed, and had relatively high levels of education. Therefore, it was difficult to determine whether similar results would occur if the studies included individuals with more representative demographic characteristics among a clinical population. Both studies had similar limitations around the heterogeneity of the therapist's assistance (e.g. self-help to face-to-face help) and communication methods (e.g. email, telephone).

Gonçalves et al. (2012) conducted a systematic review of ten studies (n = 170) on the use of VRET in combination with CBT delivered in both inpatient and outpatient settings within a range of five to twenty sessions. Eight of the ten studies used samples of war veterans, one study included participants who experienced a "broad variety of traumatic events" (p. 4) with no further details, and the last study was conducted with victims of the terrorist attack of September 11, 2001. They found that VRET showed a significant reduction of PTSD symptoms compared to a waitlist, but no difference in both treatment outcomes and dropout rates when compared to ET. They noted that VRET is limited in individualizing the virtual reality environment according to the perspective of each client's trauma, due to the high financial cost. However, when addressing homogenous samples (e.g. war veterans), it has potential to create a virtual environment that would elicit activation for trauma memories.

Prolonged Exposure (PE) and Narrative Exposure Therapy (NET)

Powers et al. (2010) conducted a meta-analysis of thirteen RCTs on PE for adolescent and adult population (n = 675). All studies included used the manualized ET (Foa et al., 1991), which consisted of repeated imaginal or in-vivo exposure to trauma memories and addressed avoided trauma cues in a range of eight to sixteen sessions. They found that PE outperformed waitlist in reducing PTSD, depression and anxiety at post treatment and follow-up. When comparing PE with various other treatments, there was no significant difference on primary outcome measures at post treatment. Furthermore, there was no significant difference in effect sizes across types of trauma (e.g. childhood abuse, rape, & war).

Another version of exposure therapy is Narrative Exposure Therapy (NET). Different variants of exposure therapy often target the most distressing traumatic memory assuming that this will bring the most effective treatment outcome (Gwozdziewycz & Mehl-Madrona, 2013). However, clients who survived experiences such as organized crimes, ongoing violence, war, and torture have often experienced multiple chronic, interconnected traumatic events which make it challenging to identify the 'worst event.' To address this challenge, NET (Neuner et al., 2002) and the children's version,

KIDNET (Onyut et al., 2005) help clients construct a narrative about their whole life from birth to present, while focusing on the details of trauma experiences in a prolonged exposure manner during short-term treatment (ranging 6–8 sessions). Similar to narrative therapy, the biographic narrative is constructed into a document, and in the final session, a client and therapist review it together. A meta-analysis was conducted to examine seven studies exploring the effectiveness of NET among refugees with PTSD (Gwozdziewycz & Mehl-Madrona, 2013). The participants were children and adults (n = 443) and included refugees of the 2004 tsunami in Sri Lanka, and refugees fleeing war and torture (e.g. Rwanda genocide) in refugee camps or settlement sites. Additionally, the authors also compared the effectiveness of studies who used lay counsellors versus trained professionals. They found that moderate effect size of all active treatment including NET and KIDNET were effective in reducing trauma symptoms among various adult and children refugee population. They also found that NET can be effectively facilitated by locally trained lay counsellors or former refugees with lived experiences. They highlighted that NET could be especially useful as it required less professional training than other therapies and could empower people with lived experience to provide treatment to other members of their community.

Cognitive Processing Therapy (CPT)

Gorden et al. (2018) conducted a meta-analysis of eleven studies (n = 1130) on CPT in both military and community adult populations. The CPT intervention consisted of written accounts of traumatic events and cognitive therapy (e.g. identifying and challenging maladaptive trauma-related beliefs). They noted that CPT showed a significant difference in both PTSD and depression symptom reduction at post treatment and moderate to large significance at follow-up when compared to waitlist. Also compared to other treatments (e.g. PE), CPT was better at reducing PTSD symptoms with a small to moderate significance at post-treatment, however no difference at follow-up. There was little information reported about types and duration of trauma and about participants except gender, age and sample settings (i.e. community or military, mostly males), thus the findings are not generalizable.

Eye Movement Desensitization and Reprocessing (EMDR)

EMDR is an integrative therapy where clients hold distressing images related to their trauma in their mind while completing saccadic eye movements. Saccadic eye movements were initially theorized to interfere with working memory and elicit an orienting response which lowers emotional arousal associated with trauma memories. There are three review studies on EMDR included (Chen et al., 2015; Field & Cottrell, 2011; Wilson et al., 2018). To explore potential benefits of using EMDR with children and adolescents, Field and Cottrell (2011) conducted a systematic review of eight studies on individual EMDR with children (age range 4–17) with the following trauma experiences: single or multiple diagnosed PTSD, natural disaster, sexual abuse, refugees with varied traumas (rape, torture etc.), burglary, and road traffic accidents. Sample sizes were small throughout the studies, ranging from a single case study to thirty-three participants at the most. When compared to a waitlist, EMDR had a significant improvement in PTSD symptoms, but no difference when compared to CBT. They noted that the mean numbers of sessions in EMDR (i.e. 6.1 sessions) was almost a half compared to CBT (i.e. 11.6 sessions), thus EMDR could be considered to relieve PTSD symptoms faster than CBT.

Chen et al. (2015) conducted a systematic review of eleven RCTs on EMDR compared to many variants of CBT for adult population (n = 424) with PTSD. They found that EMDR was slightly superior to CBT in total PTSD scores and decreased intrusion and arousal severity, however there was no difference in avoidance symptoms. A meta-regression analysis showed that trauma type and gender were not a significant source of heterogeneity between studies. Since the participants in the included studies came from various locations including Australia, Italy, Netherlands, the US, the UK, the authors acknowledged that cultural differences existed but did not include this factor in the analysis.

Wilson et al. (2018) conducted a systematic review of six studies including two meta-analyses by Chen et al. (2014, 2015) and four RCTs published after these reviews. Since the meta-analyses were covered by our review of Chen et al. (2015), we focused on reporting their review of four RCTs on adults with PTSD. The participants (n = 347) from the four studies included 70 adult Syrian refugees, 50 adults diagnosed with Multiple Sclerosis, 155 adults with chronic psychotic disorders, and 72 other refugees diagnosed with PTSD. The sample consisted of a combination of single and complex trauma experiences. They found that, compared to a waitlist and relaxation therapy, EMDR was more effective in significantly improving PTSD diagnosis and symptoms. All four of the RCTs also measured symptoms of anxiety and depression and found that EMDR significantly reduced anxiety and depression symptoms as compared to waitlist, but no significant differences in depression and anxiety symptoms when compared to relaxation therapy. For the adult population with chronic psychotic disorders, EMDR and PE were reported as being an effective therapy to improve paranoid thoughts in one study (Bont et al., 2016). The authors highlighted that EMDR has been effective in a wide range of countries including East and West, affirming the possibility of effectiveness across diverse cultures.

With the exception of Field and Cottrell's review (2011), there is little discussion around the level of EMDR training needed in order for the intervention to be successful. Although Chen et al. (2015) noted that EMDR was more effective when delivered by more experienced therapists, their level of experience was rated by their group facilitation experiences, rather than EMDR specific experiences. Chen et al. (2015) reported sessions with longer than 60 min brought better outcomes in EMDR. Across all studies, EMDR interventions had a low dropout rate, indicating more tolerability than other approaches such as PE (Wilson et al., 2018).

Hypnotherapy

A meta-analysis of six studies on hypnotherapy (O'Toole et al., 2016) found that hypnotherapy significantly reduced PTSD symptoms of intrusion and avoidance for participants (n = 391) for both military (e.g. war or terrorism) and non-military related traumas, regardless of the time single trauma occurred, and whether it was witnessed, directly experienced, or both. However, not all studies used the same type of hypnotherapy, which compromised the findings.

ESTs for Conventional Psychotherapies for PTSD

Nine conventional empirically supported therapies for treating PTSD were identified.

Emotion Focused Therapy for Trauma (EFTt)

EFTt is a short-term modality that targets the patterns of disturbances typically characterized as complex PTSD stemming from childhood abuse. EFTt regards the therapeutic relationship and emotional processing of trauma memories as the primary mechanisms of change. EFTt focuses on cultivating an alliance, reducing maladaptive fear and shame, and resolving issues with perpetrators. Paivio et al. (2010) conducted a study comparing two versions of EFT for trauma. In one version, clients used imaginal confrontation (IC) (n = 20), with the perpetrators of childhood abuse and neglect in an empty chair. The other version, empathic exploration (EE) was when the client explored issues with the perpetrators only in interaction with the therapist (n = 25). Participants were men and women with histories of different types of childhood maltreatment. They found that there was improvement on all dependent measures (i.e. symptom distress, self and interpersonal difficulties, unresolved attachment injuries) in both treatment groups. There was a higher dropout rate in IC (20%) compared with EE (7%), concluding that EE may be regarded as a less stressful procedure.

Skills Training in Affect and Interpersonal Regulation (STAIR)

STAIR is completed with a client prior to the start of any trauma-focused treatment by addressing problems in affect and interpersonal regulation to prepare the client for effective and successful use of trauma-focused treatment such as exposure therapy (Cloitre et al., 2002). Cloitre et al. (2002) conducted a RCT testing the efficacy of STAIR and modified PE compared to waitlist, for women (n = 58, mean age: 24) with PTSD related to childhood physical and/or sexual abuse, mainly complex trauma. They found that STAIR followed by PE was successful in reducing PTSD symptoms as well as improving affect regulation problems and interpersonal skills. However, without PE, STAIR was only effective in decreasing depression, anxiety, anger expression, and negative mood regulation. They concluded that using STAIR as an initial phase of trauma treatment might be beneficial for clients who were in the pre-contemplative or contemplation stage of change, as they might not feel ready to engage in trauma-focused exposure work, but more prepared to address issues with emotional regulation. The participants came from various diverse populations. Many experienced severe comorbid mental health and/or substance use issues, histories of suicide attempts, and self-harm behaviours. This study may show promise for clients of diverse backgrounds who present with more complex, high risk needs.

Interpersonal Psychotherapy (IPT)

Markowitz et al. (2015) conducted a RCT of 14-weeks of IPT focusing on current interpersonal trauma rather than past trauma among culturally diverse adults (n = 110, mean age: 41) with chronic PTSD such as, childhood abuse, sexual and physical abuse, and multiple depressive episodes. They found that IPT significantly improved PTSD symptoms, comparable to PE and relaxation therapy. They also found that comorbid depressive disorder strongly predicted dropout in the PE group, but not in the IPT or relaxation group. This may be helpful for clinicians to consider when treating PTSD, as tolerating PE while experiencing comorbid depression and PTSD may be difficult for individuals and IPT may be an effective alternative. Given racial and ethnic diversity among the participants, IPT may be applicable to diverse population with PTSD.

Dialectical Behavioural Therapy for PTSD (DBT-PTSD)

Steil el al. (2011) and Bohus et al. (2013) both explored the effectiveness of DBT-PTSD for adults who have experienced childhood sexual abuse. Both studies found that DBT-PTSD significantly improved a posttraumatic diagnostic scale between baseline and follow up and smaller improvements

for reduction of trauma symptoms, depression, and anxiety. Both studies were conducted in residential settings with intensive treatments plans. This included multiple therapy sessions per week, as well as additional skills training, group sessions, mindfulness sessions, PTSD specific psychoeducation and other non-PTSD specific weekly group interventions such as music or art therapy. This treatment requires high commitment from both the client and clinician and may be challenging to replicate in non-residential treatment settings.

Seeking Safety

Seeking Safety is described as a present-focused manualized, cognitive-behavioural group therapy for PTSD and a substance use disorder (SUD). Boden et al. (2012) studied Seeking Safety for male veterans (n = 98, mean age: 55). The RCT compared the Seeking Safety group with treatment as usual (TAU), such as twice weekly recovery groups focusing on maintaining abstinence. They found that when compared to TAU, Seeking Safety was associated with better outcomes for both substance use and PTSD severity. This study had a sample of only male veterans with military-related trauma, thus making it difficult to generalize the findings to women and non-veterans. Since the participants in the study were diverse in terms of race, Seeking Safety may be used for diverse male veterans with military related trauma and SUD.

Trauma Incident Reduction (TIR)

TIR is a brief memory-based intervention used to treat symptoms of PTSD. Valentine and Smith (2001) conducted an RCT to explore the effectiveness of TIR for a population of incarcerated women (n = 123, average age range 32.8–34.9) in a federal prison representing different ethnic groups and diverse socioeconomic statuses. The trauma types included in the study were interpersonal trauma, robbery or assault, and sexual abuse. They found that TIR was effective in alleviating symptoms of PTSD, depression and anxiety, as statistically significant results were seen on all measures post-treatment and follow-up, with the exception of the intrusion subscale of the PTSD symptom scale at post-treatment. A key element of the success of TIR was the 'client-respectful' approach, which emphasized that the client's perception of the traumatic incident took precedent over any other perception of the incident, which was validated by clinicians. The participants confirmed that the client-respectful nature of TIR was highly appreciated and was one of the most important aspects of TIR. The authors noted that since TIR followed a very specific protocol, social workers with diverse background and varying levels of experience would be able to use it in their practice.

Accelerated Resolution Therapy (ART)

ART works to reprogram the way in which distressing memories are stored in the brain to reduce triggers through rapid eye movements (Kip et al., 2013). Kip et al. (2013) conducted an RCT comparing ART versus an Attention Control treatment among veterans (n = 57). They found that ART was effective in reducing symptoms of PTSD, depression, anxiety and trauma-related guilt among veterans. The participants (mean age: 41) were mostly white (84%) male (81%), and almost a half have endured trauma for more than ten years including sexual trauma and military-related trauma. ART is highly standardised and can be delivered by a wide range of therapists with diverse backgrounds and experience, which may enhance the generalizability of the treatment delivery and may be beneficial for new or less experienced therapists. Also, ART is a short-term therapy, delivered in 2–5 sessions over a 2-week period, and the completion rate of this study was 94%. This may be beneficial for clients with limited time to commit to long term treatments.

Metacognitive Therapy (MCT)

MCT aims to change 'how' people think rather than 'what' they are thinking about, to provide alternative ways of responding to thoughts related to past trauma experiences (Wells et al., 2015). A RCT study found that MCT was comparable to PE in lowering symptoms of PTSD, Anxiety, and depression in eight sessions (Wells et al., 2015). This study included 32 adults (63% male, mean age: 41) with various trauma experiences such as sexual assault, combat exposure, automobile accident, witnessing violence, fire, and armed robbery.

Imagery Rehearsal Therapy (IRT)

IRT focuses on chronic nightmares associated with PTSD, consisting of three sessions using a cognitive-imagery restructuring treatment. A RCT studied a sample of 168 women who experienced sexual assault in childhood or adulthood, and struggled with PTSD symptoms including chronic nightmares and insomnia (Krakow et al., 2001). For those who completed treatment (70% white, mean age: 40 years old), the authors found that IRT was successful in reducing nightmare frequency, enhancing sleep quality, and improving PTSD symptoms after three sessions of IRT. The authors highlighted that those who did not complete IRT had relatively worse nightmares, sleep disturbance and PTSD symptoms at baseline, therefore IRT would be more accessible to individuals with less severe distress than those with worse distress.

Empirically Supported Non-Conventional Psychotherapies for PTSD

Seven non-conventional therapies have been empirically supported to treat PTSD.

Yoga and Other Physical Activities for PTSD

Van der Kolk et al. (2014) conducted a RCT with women (n = 64, 73% white) who had chronic PTSD due to interpersonal assaults. The participants were assigned to complete a weekly one-hour class of trauma-informed yoga (yet no disclosure or discussions about the abuse or trauma experienced) or a supportive women's health education control group for ten weeks. They found that yoga significantly reduced PTSD symptoms, with effect size comparable to well-researched psychotherapeutic and pharmacologic approaches. This may be helpful for clients who have been reluctant to share trauma experiences, and who have not benefited from conventional treatments. Similar to using yoga techniques to address PTSD, a systematic review of four RCTs, all compared to a waitlist, found that various types of physical activity including moderate-intense aerobic exercise, resistance exercise, and different forms of yoga significantly decreased PTSD and depressive symptoms among adults (n = 200, age range: 34–52) (Rosenbaum et al., 2015).

Emotion Freedom Technique (EFrT) and Acupuncture

EFrT is a meridian based therapy that assumes that emotional disturbances, including PTSD, are a by-product of disturbances in the body's energy field. The techniques can be self-applied and requires the light manual stimulations of the endpoints of traditional acupuncture while focusing on traumatic events. A comparison study between EFrT and EMDR found that both produced significant therapeutic gains for adults (n = 46, age 18–65) with varying types of trauma at both post-treatment and follow-up (Karatzias et al., 2011). Another RCT study found that acupuncture resulted in a large decrease in PTSD symptoms, similar to group CBT which were maintained at follow-up with adults (n = 61, mean age 40–43). Both interventions were superior to waitlist for all outcome measures (Hollifield et al., 2007). The majority of participants experienced a traumatic event before the age of 12, primarily ongoing child abuse and/or multiple traumas throughout their lives. This indicates that acupuncture may be suitable for those with complex, longstanding traumas.

Mantram Repetition Program (MRP) and Mind–Body Therapy

MRP teaches three tools for training attention and regulating emotion: concentrative meditation, slowing down and acting intentionally, and one pointed attention. Bormann et al. (2013) conducted an RCT on MRP to investigate its effectiveness on PTSD among predominantly male veterans with military-related trauma (n = 146, 58% white) and found that MRP in combination with case management and medication was highly effective in decreasing hyperarousal symptoms of PTSD.

Similar to MRP, a systematic review of 15 studies by Cushing and Braun (2018) found Mind–Body therapy including mindfulness-based stress reduction, yoga, MRP, and meditation to be effective in reducing PTSD, depression and anxiety symptoms and enhancing sleep quality in a sample that was primarily male, with post 9/11 or military-related trauma. Given this review included different types of mind–body therapy, it would be fruitful to have future research on each approach with similar or different populations. Gordon et al. (2008) conducted an RCT on a twelve-session Mind–Body Therapy intervention for adolescents living in postwar Kosovar (n = 82, 76% female, average age:16.3). They found that Mind–Body Therapy was effective compared to waitlist, in reducing self-reported PTSD symptoms at post and three-month follow-up. The groups were run by school teachers in consultation with psychiatrists and psychologists. The authors noted that there might some potential bias, as it might have been possible that students may have wanted to please the teachers by reporting a decrease in symptomology. On the contrary, they also highlighted how the greater familiarity with the teachers might have facilitated more open discussions and sharing of problems and led to a decrease in mental health stigma in Kovoso.

Music Therapy

Carr et al. (2012) conducted a RCT examining music group therapy (weekly for 10 weeks) for adults (n = 17) who were not responsive to CBT. Trauma experiences varied including torture, civilian casualties of war, bullying, child sexual abuse, rape and terrorism. The authors found that compared to waitlist, the music therapy group experienced a significant reduction in PTSD symptoms and a marginally significant reduction in depression symptoms. They highlighted that music therapy might be particularly beneficial for individuals who perceived talk therapies as distressing and intrusive. They also illustrated the importance of socialization and group cohesion as the most frequently cited helpful factor of the music therapy by the group.

Discussion

There are several limitations for the current review. Since it followed the guideline of Rapid Evidence Assessments (Grant & Booth, 2009), it is subject to weaknesses of this

form of review such as, publication bias by curtailing the duration of the review process, using only peer-reviewed journal articles, and a lack of quality assessment. In addition, there are several limitations of the extant evidence of all included studies, such as a lack of homogeneity between research evidence reviewed and synthesized in each study as well as the researchers' confirmation bias for demonstrating the effectiveness of the treatment that were focusing on (e.g. proponents of EMDR found it more effective than others). Also, the inconsistencies in study design, intervention characteristics and definition, sample, type of trauma, outcome measures and follow-up procedures within and across the included studies limit comparability among data, and ultimately impacts conclusions. In addition, the omission of the exclusion criteria and limited details about participants in many studies decreases the ability to guide social workers in exploring which treatment would be the best fit with each idiosyncratic client. Mindful of the limitations, this review attempted to document the details of each included study so that social workers have the ability to review and compare existing evidence and discern which therapy approach most closely reflects similar demographics, types of trauma, and other treatment conditions for their individual client. Thus, the findings, clinical considerations, and research implications are presented specifically with the lens of supporting clinicians.

Clinical Considerations in Applying ESTs for PTSD in Practice

The multitude of ESTs in both conventional and non-conventional trauma approaches demonstrate that diverse trauma populations can be supported and treated through a variety of treatments. There are several considerations to inform clinical practice. First, social workers must critically reflect on demographics and sample characteristics of each of the treatments, as trauma experiences and their manifestations in psychological symptoms can be influenced and affected by demographic factors. Not all studies included detailed information of gender, age, and cultural background of the sample. Each article shared limited information about the demographics of the sample used within the control and treatment groups, which limits generalizability and clinical applicability of the findings. Additionally, these demographic factors can also impact the individual's response to certain trauma treatments. For example, despite the demonstrated efficacy of TFCBT for both adults, children, and adolescents, Neelakatan et al. (2018) article noted that practitioners may experience challenges using TFCBT with youth. For youth who appraise their coping ability to be low, or those who do not fully understand the TFCBT model, may perceive aspects of exposure as coercive, which can result in poor treatment outcomes and higher attrition rates. Thus, it is important to consider how demographic factors such as age, gender, and cultural background can play a role in one's responsiveness to treatment.

Secondly, social workers must critically reflect on the type of trauma that their client has experienced. Of the thirty-four articles reviewed, ten specifically distinguished that the sample consisted of individuals who experienced complex trauma (Kip et al., 2013; Paivio et al., 2010; Hollifield et al., 2007; Bormann et al., 2013; Gordon et al., 2008; Cloitre et al., 2002; Markowitz et al., 2015; Stiel et al., 2011; Bohus et al., 2013; Boden et al., 2012). In fact, there are conflicting diagnostic categories in the global mental health field, as the DSM-5 (APA, 2013) does not distinguish PTSD (i.e. type 1) and complex-PTSD (i.e. type 2) whereas ICD-11 (WHO, 2015) distinguishes the two as the separate diagnosis (for detailed discussion see Lee & Bowles, 2020). The remaining studies included samples who experienced type 1 or a combination of type 1 and 2 traumas. However, in clinical practice, trauma scholars underline the importance of differentiating the type of trauma and providing treatments accordingly, as it is not appropriate to generalize type 2 trauma treatments as being effective for type 1 trauma experiences (Lee & Bowles, 2020). Many of the articles lacked clarity in describing the nature of the trauma experiences included and used terminology such as 'mixed trauma' or 'PTSD diagnosis,' as a way to describe the sample population. These terms are quite vague and do not adequately illustrate the type of trauma being treated. This is especially important for future research, as a clearer understanding of the type of trauma will help to better understand the effectiveness of treatment and inform social workers when considering PTSD treatment selection.

Third, social workers must consider how trauma memory processing is addressed directly or indirectly. Of the conventional psychotherapies in this review, STAIR and IPT are the only modalities that do not address the trauma memories directly and instead focuses on emotional stabilization and interpersonal interactions and supports. Many of the non-conventional therapies such as music therapy, mind–body, yoga therapy, and physical activity do not require the client to directly discuss their trauma experiences. The rest of the conventional ESTs in psychotherapy focus on reducing PTSD symptoms by addressing the trauma memories directly. This is an important consideration as many individuals may not feel ready to address traumatic experiences directly or proactively. Since all active trauma treatments are effective to address PTSD compared to no treatment (e.g. waitlist), it is important to provide the treatment in a timely manner to serve clients in need and critically consider clients' preferences of treatments (Lee & Bowles, 2020). This is in line with EBP literatures (Regehr et al., 2007) and the movement toward to trauma-informed approaches (SAMHSA, 2014). Many scholars have noted issues with

tolerating prolonged exposure therapies, which often leads to high rates of drop out, even 50% in some studies (for details see Gonçalves et al., 2012). For clients who are not ready and clearly note that they do not wish to process trauma explicitly, treatment options that do not focus on trauma memory processing may be considered to assist the clients in enhancing their emotional regulation and interpersonal skills, which may better prepare them to address their mental wellbeing. Similarly, the non-conventional therapies may be a more accessible option for individuals who are not ready or willing to engage in treatments that require direct trauma processing. Also, treatment options that do not directly focus on PTSD may be more accessible for clients who experience a stigma attached to mental health issues. For example, Ho et al. (2016) notes that Sleep-Specific CBT may be less stigmatizing, due to the focus on sleep rather than PTSD. This principle can translate to other treatments that do not address PTSD symptoms directly, potentially resulting in higher treatment adherence. It is important to note that this does not mean that any PTSD treatment will be effective for any idiosyncratic client. Rather, instead of rigidly adhering to the currently limited research protocols illustrated in this article, the social worker needs to collaborate with the client to assess demographic information and trauma types; inform the client about existing research evidence; and allow the client's preferences to inform the treatment selection. In this regard, the current review can be a useful starting point for both clients and social workers with limited resources to address the impacts of trauma in the community mental health fields.

Future Research Implications to Guide Social Workers

The findings from the current review demonstrate multiple implications to be considered for future research on PTSD interventions. Though the literature on PTSD continues to grow, the studies reviewed primarily focused on evidence for PTSD treatments with a binary lens on gender, as well as minimal demographic descriptions of the samples, making it difficult to understand the evidence for culturally diverse populations. Intersectional identities and cultural contexts play a significant role in the experiences of trauma, as well as the response to trauma treatments. There were a few articles in the review that were inclusive of non-western countries (Kayrouz et al., 2018; Gordon et al., 2008; Gwozdziewycz & Mehl-Madrona, 2013; Neelakatan et al. 2018; Sijbrandij et al., 2016), however, 86% of the studies included were conducted within the context of western countries or did not specify the countries included in the study. It seems that there has been a limited knowledge on PTSD across non-western countries, and how effective non-conventional western treatment options would be experienced by these populations. Additionally, the lack of accessibility to interpreters may result in significant differences from non-English speaking clients' intended messages and deny those populations from receiving proper services. Without research with diverse populations, social workers will be limited in providing culturally responsive trauma services.

It is also critical to clearly elaborate how therapeutic approaches are defined and delivered across studies. For example, the definition and delivery of CBT varies in/excluding exposure techniques, delivered in individual or group formats, and face-to-face or internet based among the three CBT reviews included (Kayrouz et al., 2018; Kowalik et al., 2011; Mendes et al., 2008). This lack of standardization under the same brand name as CBT makes it difficult for social workers to deliver a quality mental health services to clients with trauma experiences.

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