



## Reintegration interventions for CPTSD: a systematic review

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### ABSTRACT

**Background:** Clinical guidelines recommend a phase-based approach to treatment for complex post-traumatic stress disorder (CPTSD), yet little is known about what interventions are being offered and which may be effective in the final 'reintegration' phase.

**Objective:** To systematically review literature on reintegration interventions for CPTSD, describing the nature and effectiveness of interventions.

**Method:** We searched four electronic databases (Medline, PsycINFO, Embase, and PTSDpubs) for interventions aiming to facilitate reintegration for participants with probable CPTSD. We had two aims: firstly, to describe the interventions and secondly, to describe their effectiveness as measured through measures of reintegration, PTSD and/or disturbances in self-organization (DSO), or qualitative data describing changes experienced. Results are presented using narrative synthesis.

**Results:** Fifteen studies met our inclusion criteria. Interventions included yoga, exercise, use of service dogs, residential treatment, education, self-defence and patient research involvement. Overall study quality was low, as assessed by critical appraisal tools. Of the six studies including a control group, two reported a statistically significant improvement in the measure of reintegration between the intervention and control group, four studies reported a statistically significant difference in the measure of PTSD symptoms, but none reported any significant differences between intervention and control groups in DSO. Of all eight quantitative studies, three reported a statistically significant difference in the reintegration measure pre- to post-intervention for the intervention group, five a statistically significant improvement in the measure of PTSD symptoms, and three a significant difference in the DSO measure. From eight studies reporting qualitative data we synthesized themes into eight categories, within which facilitation of connection with others was the most commonly reported benefit.

**Conclusions:** The interventions outlined may facilitate reintegration, however, research in this area is still in its infancy and quality research is lacking. Further research is needed to establish whether reintegration interventions enhance treatment for CPTSD.

### Intervenciones de reintegración para TEPTC: una revisión sistemática

**Antecedentes:** Las guías clínicas recomiendan un enfoque basado en fases para el tratamiento del trastorno de estrés postraumático complejo (TEPTC), aunque se sabe poco acerca de las intervenciones que se ofrecen y cuáles pueden ser efectivas en la fase final de 'reintegración'.

**Objetivo:** Revisar la literatura en forma sistemática acerca de intervenciones de reintegración para el TEPTC, describiendo la naturaleza y efectividad de las intervenciones.

**Método:** Para las intervenciones cuyo objetivo era facilitar la reintegración de los participantes con probable TEPTC, buscamos en cuatro bases de datos electrónicas (Medline, PsycINFO, Embase, y PTSDpubs). Teníamos dos objetivos: en primer lugar, describir las intervenciones y, en segundo lugar, describir su efectividad medida a través de mediciones de reintegración, TEPT y/o alteraciones en la auto-organización (DSO en sus siglas en inglés), o datos cualitativos que describieran los cambios experimentados. Los resultados se presentan mediante síntesis narrativa.

**Resultados:** Quince estudios reunieron nuestros criterios de inclusión. Las intervenciones incluían yoga, ejercicio, uso de perros de servicio, tratamiento residencial, educación, auto-defensa y la implicación del paciente en la investigación. La calidad del estudio en general fue baja, según la evaluación de las herramientas de evaluación críticas. De los seis estudios que incluyeron un grupo control, dos reportaron una mejoría estadísticamente significativa en la medición de la reintegración entre la intervención y el grupo control, cuatro estudios reportaron una diferencia estadísticamente significativa en la medición de los síntomas de TEPT, pero ninguno reportó alguna diferencia significativa en los síntomas DSO entre los grupos de

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### PALABRAS CLAVE

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### 结论

概述的干预措施可能有助于重新整合;但是,该领域的研究仍处于起步阶段;缺乏质量研究。需要进一步的研究来确定重新整合干预是否能增强对CPTSD的治疗

### HIGHLIGHTS

- A phased-based approach to treating CPTSD has been recommended by experts; however Phase 3 'Reintegration' interventions have been subject to little research.
- This review showed such interventions may reduce CPTSD symptoms and enhance integration, but research evidence is currently weak.

intervención y control. De los ocho estudios cuantitativos, tres reportaron una diferencia estadísticamente significativa en la medición de la reintegración pre y post intervención para el grupo con intervención, cinco una mejora estadísticamente significativa en la medición de los síntomas de TEPT, y tres una diferencia significativa en la medición de los síntomas DSO. De los ocho estudios que reportaron datos cualitativos los sintetizamos por temas en ocho categorías, dentro de las cuales la facilitación de la conexión con otros fue el beneficio más comúnmente reportado.

**Conclusiones:** Las intervenciones descritas pueden facilitar la reintegración, sin embargo, la investigación en esta área aún está dando sus primeros pasos y se carece investigación de calidad. Se necesita más investigación para establecer si las intervenciones de reintegración mejoran el tratamiento para el TEPTC.

### 背景:临床指南建议采用阶段性方法来治疗复杂性创伤后应激障碍(CPTSD),但对于提供什么干预以及哪种在最终的‘重新整合’阶段可能有效知之甚少

**目的:** 系统地综述CPTSD重新整合干预的文献,描述干预措施的性质和有效性。

**方法:** 我们搜索了四个电子数据库 (Medline, PsycINFO, Embase和PTSDpubs) 以寻找旨在促进可能患有CPTSD的参与者重新整合的干预措施。我们有两个目标:首先,描述干预措施,其次,通过对重新整合, PTSD和/或自组织障碍 (DSO) 的测量或描述经历的变化定性数据来测量干预措施的有效性。结果使用叙述性综合法呈现。

**结果:** 十五项研究符合我们的纳入标准。干预措施包括瑜伽,锻炼,使用服务犬,住院治疗,教育,自卫和患者研究参与。通过关键评估工具评估,总体研究质量较低。在包括对照组的6项研究中,有2项报告了干预组和对照组之间重新整合测量的改善有统计学显著差异,有4项研究报告了PTSD症状的测量有统计学显著差异,但是没有一项报告说干预与对照组之间的DSO有统计学显著差异。在所有8项定量研究中,3项报告了干预组干预前后的重新整合测量有统计学显著差异,5项在PTSD症状测量上有统计学显著改善,3项在DSO测量上有显著差异。从报告定性日期的8项研究中,我们将主题分为八类,其中促进与他人联系的类别是最常报告有益处的。

Herman (1992) introduced the concept of complex post-traumatic stress disorder (CPTSD) to describe problems in addition to PTSD symptoms experienced by survivors of prolonged, repeated or multiple traumatic stressors (e.g. childhood sexual or physical abuse, domestic violence, genocide and torture). Whilst long recognized by clinicians, CPTSD has only relatively recently entered the diagnostic lexicon in the eleventh revision of the International Classification of Diseases (ICD-11) (World Health Organization, 2018). Research has shown CPTSD to be prevalent amongst treatment-seeking populations, with Karatzias et al. (2016) reporting a 53.1% prevalence in referrals to a specialized trauma service. For a CPTSD diagnosis, the ICD-11 requires a person first to fulfil the ‘core’ triad of PTSD symptoms: 1) re-experiencing the trauma as if it is in the present, 2) avoiding reminders of the trauma, and 3) elevated arousal and hypervigilance from a persistent sense of threat, as well as disturbances in self-organization (DSO) triad symptoms, including impairments in 1) emotion regulation, 2) self-concept and 3) relationships (Maercker et al., 2013). Unlike PTSD symptoms, DSO symptoms must be present across a variety of contexts, regardless of proximity to reminders of the trauma(s).

In the absence of an established evidence-base for the treatment of CPTSD, the International Society for Traumatic Stress Studies (ISTSS) proposed a phased-based approach to the treatment of CPTSD (Cloitre,

Garvert, Brewin, Bryant, & Maercker, 2013). The phase-based approach is intended to be cyclical meaning that clients can go back and forth between phases (Courtois & Ford, 2013). This approach had initial two-fold support. Firstly, a survey of 50 expert clinicians found 84% endorsed this approach (Cloitre et al., 2011). Secondly, Cloitre et al. (2010) randomized controlled trial (RCT) found a phase-based approach of skills training followed by trauma memory processing to be superior to the other conditions (exposure-focused treatment or a skills focused intervention alone) in a sample of women with PTSD from childhood abuse who would meet criteria for CPTSD

The phase-based approach, initially put forth by Herman (1992), involves three stages: 1) stabilization, 2) trauma memory processing and 3) reintegration. Stabilization consists of working with the individual to establish safety, address life stressors and manage symptoms and emotions, and provide psychoeducation about trauma and CPTSD. There is debate regarding the necessity of the stabilization phase, and it has been argued that it can unnecessarily delay subsequent phase treatments (Bicanic, de Jongh, & Ten Broeke, 2015; De Jongh et al., 2016). Regarding phase two interventions, Karatzias et al. (2019) found cognitive behavioural therapy (CBT), eye movement desensitization and reprocessing (EMDR) and exposure alone (EA) to be superior to usual care for PTSD symptoms for samples with likely CPTSD. These interventions also showed effects on relationship

disturbances, while CBT and exposure alone showed effects on negative self-concept. There was a lack of evidence to analyse impact on the third component of DSO; affect dysregulation. Karatzias and colleagues' (2019) review suggests that trauma memory processing interventions can help people with CPTSD.

The third, 'reintegration' phase is inconsistently defined and the focus of the least research of the three phases (McFetridge et al., 2017). Initially outlined by Herman (1992), phase three was described with the aim for individuals to 1) care for themselves by 'letting go' of the parts of the self that were developed in the context of trauma, and to 2) care for their relationships to increase their 'sense of power and control.' The transition to phase three should be made through collaborative decision-making when a client's PTSD symptoms are consistently remitting (Cloitre et al., 2012). More recent publications echo Herman (1992) by noting the importance of the development of identity and self-esteem once individuals have integrated their trauma memories and realize the loss they have ensured due to trauma (Courtois, 2010; Courtois & Ford, 2009). These publications also recommend concurrent focus on development of relationships in phase three, including working on skills to facilitate trusting relationships and support networks. Summarizing phase three for the purpose of the guidelines of CPTSD treatment, the ISTSS defines reintegration interventions as having the aim of 'greater engagement in relationships, work or education, and community life' (Cloitre et al., 2012, p. 6). To achieve the aims of phase three, the ISTSS recommends therapists help their client to 1) strengthen their social networks, 2) develop plans for engagement in education or employment, and 3) plan recreational or social activities (Cloitre et al., 2012). Interventions suggested for phase three include self-defence classes for survivors of domestic violence, social action related to the trauma (sometimes referred to as a 'survivor mission'), confronting family members about childhood abuse and focusing on unresolved issues regarding intimacy, sexual identity, and life choices, including relationship and vocational choices (Courtois, 2010; Herman, 1992). Phase three can be time consuming (McFetridge et al., 2017); the aforementioned survey of expert clinicians pre-defined phase three as lasting between six and 12 months and consensus recommended that this period was comprised of weekly sessions that reduced frequency over time, depending on client status (Cloitre et al., 2011). Phase three can be summarized as supporting individuals to transfer the skills they have developed throughout treatment to their daily life (Courtois & Ford, 2020).

Recommendations for phased-based approaches to CPTSD treatment were, however, formed in the absence of an evidence-base for the treatment of CPTSD. Since the publication of the ISTSS recommendations, the methodological rigour of the research

supporting a phase-based treatment approach to CPTSD has been questioned due to the lack of randomized controlled trials (RCTs), active control groups and follow-up (De Jongh et al., 2016). In a recent systematic review, Coventry et al. (2020) concluded that multicomponent interventions, which included phase-based approaches, are the most effective intervention for people with PTSD to complex trauma. However, evidence is currently inconclusive regarding whether a phased-based approach for people with CPTSD, including stabilization as well as trauma memory processing, is superior to trauma memory processing alone. Whilst debate has erupted about whether there are additional benefits of an initial stabilization phase as opposed to memory trauma processing alone, very little attention has so far been paid to the third phase of the recommended phase-based approach.

## 1. Aim of this review

Our primary aim in this study was to describe reintegration interventions being provided for people with probable CPTSD and our secondary aim was to report their effectiveness through quantitative measures of reintegration, DSO and/or PTSD or qualitative data describing changes experienced. This evidence will be informative for guidelines to provide holistic care and develop evidence-based guidelines.

## 2. Method

### 2.1. Protocol and preregistration

We adhered to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance throughout this review (Moher et al., 2015), and registered the review with PROSPERO (CRD42020171331).

### 2.2. Search strategy

The first reviewer conducted a literature search in OVID (Medline, PsycINFO, Embase, and PTSDpubs) between April and 4 May 2020. Search terms for CPTSD were combined with terms for integration. We used subject headings (MeSH terms) and text words within title and abstract for the search, and adapted the terms as required for each database (see Supplementary Material). As an example, the search terms used in Medline were as follows:

#### 2.2.1. CPTSD

Stress Disorders, Post-Traumatic [MeSH] OR PTSD OR posttrauma\* adj1 stress OR post-trauma\* adj1 stress OR trauma\* adj1 stress OR complex adj1

PTSD OR complex adj1 trauma\* OR psychological adj1 trauma\* OR psychological adj1 stress\*

### 2.2.2. Reintegration

reintegrat\* OR reclaim\* OR claim\* OR Community Integration [MeSH] OR integrat\* OR phase OR phase-based OR phase adj1-based OR third adj1 phase

## 2.3. Eligibility criteria

We screened papers against the following inclusion criteria:

### 2.3.1. Population

Studies used a sample of a) adults (mean age >18 years) that had been b) diagnosed with PTSD or CPTSD according to the ICD and/or DSM criteria, or had self-reported PTSD symptoms using a validated measure. For studies on participants with PTSD (vs. CPTSD), participants further had to c) fulfil at least one of the three proxy criteria for CPTSD.

As a new diagnosis, there is little literature using ICD-11 CPTSD criteria. Therefore, if CPTSD criteria were not used, we defined CPTSD using PTSD criteria and three proxy criteria: 1) trauma type, 2) complexity and/or 3) severity, following the approach used by Karatzias et al. (2019). For 1) trauma type, we included studies where participants had experienced repeated, prolonged or multiple forms of interpersonal trauma where it was not possible to escape (Herman, 1992). With regards to 2) complexity, participants had to fulfil at least one DSO criterion: affect dysregulation, negative self-concept and relationship disturbances (Karatzias et al., 2019; Maercker et al., 2013). Where possible we obtained normative scores on DSO related outcomes. Lastly, regarding 3) severity, we considered symptom scores as severe when they were above clinical thresholds.

### 2.3.2. Outcomes

We sought to describe the nature of reintegration interventions and their effectiveness, as measured through quantitative measures of reintegration, DSO symptoms and/or PTSD, or qualitative data describing changes experienced. We used the ISTSS definition of reintegration interventions and therefore included interventions aimed at increasing engagement in relationships, recreational or social activities, employment, education or community life (Cloitre et al., 2012). We only included studies that reported measures of reintegration, DSO and/or PTSD symptoms or qualitative data describing changes experienced. With regards to measures of reintegration, and in the absence of a specific measure designed for reintegration, we included measures of constructs related to relationships, recreational or social activities,

employment, education or community life, in line with the ISTSS definition.

We used deliberately broad criteria for inclusion in this review as this is an under-researched area; incorporating both quantitative and qualitative studies and placing no restrictions on the date of publication. We included interventions of any length.

We excluded studies that a) were not written in the English language, b) included  $\geq 50\%$  of participants with a co-morbid traumatic brain injury or c) involved interventions explicitly aimed at only phase one and/or two of treatment for CPTSD, as outlined by the ISTSS guidelines.

## 2.4. Screening process and data extraction

After removing duplicates, we screened articles by title, abstract and then full-text for eligibility. For the abstract screen, two reviewers screened the first five papers together and then both screened the next 100 papers independently. We had a high inter-rater reliability for the first 100 abstract screens ( $\kappa = 0.93$ ), and we resolved conflicts through discussion with the third reviewer. The first reviewer screened the remaining abstracts. For the full-text screen, both reviewers independently screened all the texts. Comparison of these gave 100% agreement. The first reviewer then searched the included studies' reference lists and OpenGrey and PTSD organization websites for grey literature. We extracted data into pre-defined tables which were cross-checked by both reviewers. If any data were not available in the paper, we contacted the corresponding author.

## 2.5. Critical appraisal

Two reviewers independently appraised quality for quantitative, qualitative and mixed methods studies. The reviewers resolved all discrepancies through discussion.

For quantitative studies, we used the Effective Public Health Practice Project (EPHPP; Armijo-Olivo, Stiles, Hagen, Biondo, & Cummings, 2012) checklist. For this, the reviewers rated each study as strong, moderate or weak concerning six criteria: 1) selection bias, 2) study design, 3) confounders, 4) blinding, 5) data collection, and 6) drop out. The scoring rules were then used to give each study an overall global rating of strong (no weak ratings), moderate (one weak rating) or weak (two or more weak or unclear ratings).

We assessed studies with qualitative data using the Critical Appraisal Skill Programme (CASP) qualitative checklist (CASP, 2017). The assessment included the following domains: 1) aims, 2) methodology, 3) link to theory, 4) study design, 5) study procedures, 6) relationship between researcher and participants, 7) ethical considerations, 8) data analysis. We used CASP guidance and methodology outlined by Lachal, Revah-Levy, Orri, and Moro (2017) to describe studies in relation to the

CASP criteria to describe studies in relation to the CASP criteria. Mixed methods studies were assessed using both criteria.

Lastly, we used the Oxford Centre for Evidence-Based Medicine Levels of Evidence guideline to assign a level of evidence to each study (Howick et al., 2011). This tool helps develop clinical recommendations by providing a hierarchy of study designs rated from 1 to 5 where a lower number indicates a higher level of evidence.

## 2.6. Synthesis of results

We used guidance provided by Popay et al. (2006) to inform the narrative synthesis of our results. We first categorized the interventions into broad groups (e.g. yoga). For each group, we outlined the content of the included interventions and the results of the studies. To summarize qualitative data, we extracted the themes identified in the studies and grouped the themes into categories. For studies with quantitative data, we recorded whether there was a significant difference in the secondary outcomes (reintegration and/or PTSD) pre- to post-intervention and/or in comparison to control groups, where included.

## 3. Results

### 3.1. Study selection

16,645 articles were returned by the database search (see Figure 1 for PRISMA flow chart). After de-duplication and removal of clearly irrelevant articles, we retrieved 212 full texts for title and abstract screening. Of these, 144 were excluded as irrelevant, leaving 68 records that were fully assessed for eligibility. Fifty-six studies were excluded (see Supplementary Material), mostly because their outcomes did not meet the inclusion criteria of our review ( $n = 33$ ). Therefore, 12 papers were included in the review from the search. Three papers were also included from hand-searching reference lists. In total, 15 studies were included (see Figure 1).

### 3.2. Study characteristics

Study characteristics and participant demographics are outlined in Table 1. Of the 15 studies, 11 were based in the USA, two in the UK and two in Denmark. Trauma types included: childhood abuse (5), military trauma (5), mixed trauma (3) and sex trafficking (1).

PRISMA diagram of search strategy

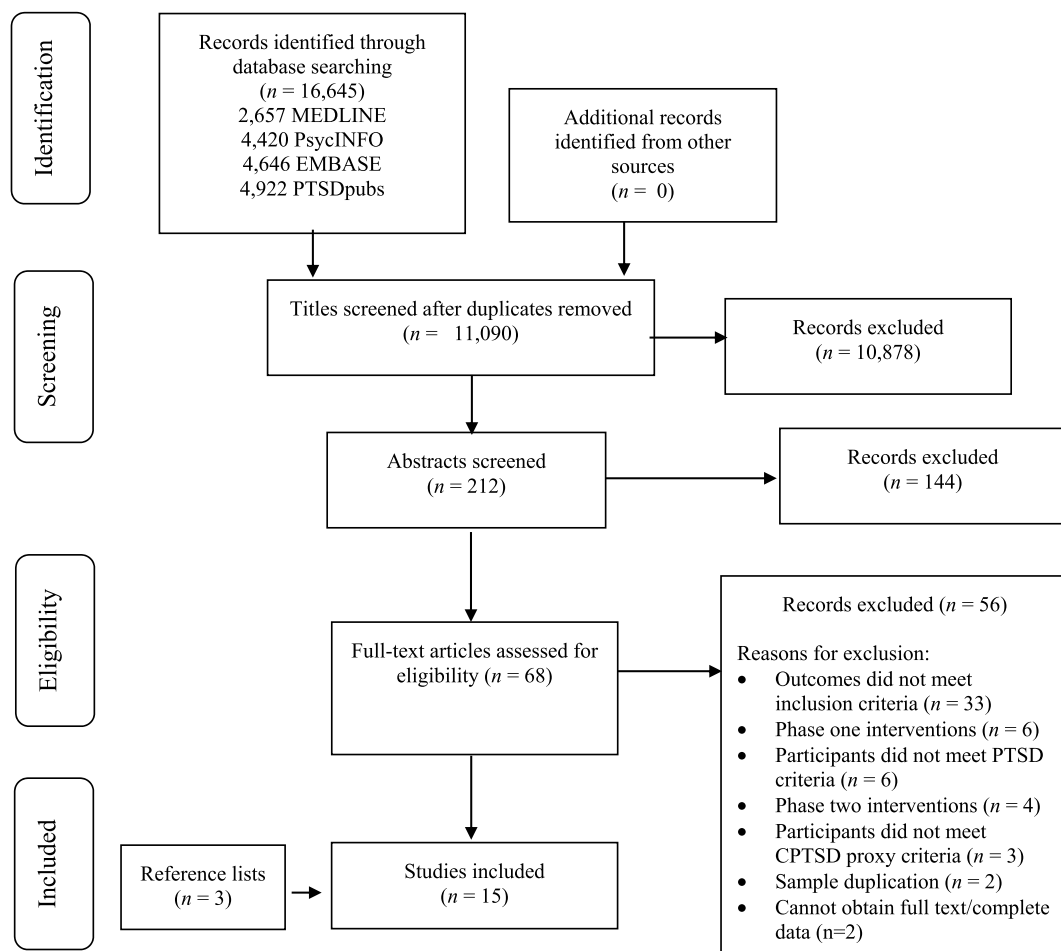


Figure 1. PRISMA diagram of search strategy.

The median sample size was 34 and there was considerable variation in sample sizes ( $M = 56$ ; range = 3–318). The mean age of participants was 41.1 years ( $Mdn = 43.0$ ; range = 26.2–48.3) and 55% of all participants were female. All included studies were published between 2006 and 2020. Eight studies collected quantitative data, of which four were RCTs, two were non-randomized controlled trials and two used single groups. One RCT also collected qualitative data (Bergen-Cico et al., 2018), so eight studies in total collected qualitative data through individual interviews (6), open-ended written questions (1) and medical records (1).

### 3.3. PTSD measure and CPTSD proxy criteria

Most studies (9) involved participants with PTSD diagnosed by a clinician using DSM, ICD or the Clinician Administered PTSD Scale (CAPS) criteria. Three studies used self-report measures. One study used ICD-11 criteria for CPTSD. Regarding CPTSD proxy criteria, 13 studies used samples that all had 1) complex trauma histories. Six studies reported 2) DSO

measures significantly higher than clinical thresholds or general population samples and four studies met 3) severity criteria by reporting mean scores on PTSD measures significantly above the standard cut-off score or in the moderate to severe range. PTSD criteria and CPTSD proxy measures, or CPTSD measure, for each study are reported in Table 2.

### 3.4. Quality of included studies

Regarding qualitative studies, three of the CASP criteria were totally met by all studies: appropriateness of qualitative methods, research design and data collection methods. Only two studies completely met all criteria. Table 3 shows the individual CASP ratings.

### 3.5. Levels of evidence

In terms of level of evidence, the included studies ranged from levels 2 to 4, as shown in Table 1. The two studies that were level two were RCTs. Both of these included a clinical sample and used validated clinical interviews or measures (van der Kolk et al., 2014). However, both of these studies were rated as

**Table 1.** Characteristics and baseline demographics of included studies.

Author (year), country	Trauma type	Study design (Level of Evidence)	Intervention and control group	N	Age, mean (SD)	Female, n (%)
van der Kolk et al. (2014) USA	Childhood abuse	RCT (2)	Yoga	32	41.5 (12.2)	32 (100%)
Kirk (2014) USA	Mixed <sup>1</sup>	RCT (2)	Women's health education Physical exercise	32 20	44.3 (11.9) 47.33 (10.42)	32 (100%) 20 (100%)
Langer Ellison, Reilly, Mueller, Schultz, and Drebing (2018) USA	Military	RCT (2)	WL/yoga Education support Generalized support	14 17 16	45.8 (14.47) 29.31 (3.92)	14 (100%) 5 (16.13%)
Nordbrandt, Sonne, Mortensen, and Carlsson (2020) Denmark	Mixed <sup>1</sup>	RCT (2)	Basic body awareness therapy Physical exercise TAU	105 109 104	43.1 (10.7) 44.6 (9.5) 46.2 (10.4)	56 (53.3%) 55 (50.5%) 57 (54.8%)
Bergen-Cico et al. (2018) USA	Military	Non-randomized controlled study & qualitative (4)	Service dog WL	31 14	41 (12) 43 (11)	0 0
O'Haire and Rodriguez (2018) USA	Military	Non-randomized controlled study (4)	Service dog WL	75 66	37.0 (8.5) 37.3 (8.1)	15 (20%) 16 (24.2%)
David, Simpson, and Cotton (2006) USA	Military sexual assault	Single group quantitative (4)	Self-defence training	12	48.3 (9.72)	12 (100%)
Munsey, Miller, and Rugg (2018) USA	Sex trafficking	Single group quantitative (4)	Residential treatment	11	24 (4.05)	11 (100%)
Jindani and Khalsa (2015) USA	Mixed <sup>1</sup>	Qualitative (4)	Yoga	40	44.7 (11.2)	31 (77.5%)
Rhodes (2015) USA	Childhood abuse	Qualitative (4)	Yoga	39	41 (NR)	39 (100%)
Madsen, Carlsson, Nordbrandt, and Jensen (2016) Denmark	Mixed <sup>1</sup>	Qualitative (4)	Physical exercise	3	40 (12.5)	2 (66%)
West, Liang, and Spinazzola (2017) USA	Childhood abuse	Qualitative (4)	Yoga	31	41.5 (12.2)	31 (100%)
Yarborough, Stumbo, Yarborough, Owen-Smith, and Green (2018) USA	Military	Qualitative (4)	Service dog	41	45 (11.9)	14 (31.1%)
Matheson and Weightman (2019) UK	Childhood abuse	Qualitative (4)	Patient involvement in research	6	50.5 (12.8)	4 (66.67%)
Busuttill (2006) UK	Childhood abuse	Case series (4)	Residential treatment	25	26.2 (NR)	22 (88%)

NR = not reported; TAU = treatment as usual; WL = waitlist

<sup>1</sup>See Supplementary Material for description of traumas experienced by sample

**Table 2.** PTSD and CPTSD measure or CPTSD diagnosis used in each study.

Reference	PTSD measure/ diagnostic system	CPTSD diagnos- tic system	1) Trauma type		2) DSO criteria			3) Severity		
			Intervention group measure, mean score (SD)	DSO criteria (mean score (SD))	Normative score (SD), population (reference)	Measure	Cut-off used in study	Standard clinical cut-off	Baseline study intervention sample mean (SD)	
van der Kolk et al. (2014)	DSM-IV	/	C	AD (IASC-AD, 76.69 (14.83))	11.24 (4.42), GP (Briere and Runtz, 2002)	CAPS	/	CAPS scoring rules	73.94 (20.83)	
Kirk et al. (2014)	DSM-IV	/	/	AD (DERS, 96.3 (NR))	77.99 (20.72), female students (Gratz and Roemer, 2004)	PDS	NR	21-35 moderate to severe	32.5 (13.3)	
Langer Ellison et al. (2018)	DSM-IV/5	/	C	/	/	PCL	NR	38	59.8 (16.38)	
Nordbrandt et al. (2020)	ICD-10	/	C	/	/	HTQ	/	1.75	3.17 (0.04)	
Bergen-Circo et al. (2018)	PCL-M	/	C	DR (SCS-SF isolation subscale, 4.1 (0.8))	/	PCL-M	36	38	63.9 (9.2)	
O'Haire and Rodriguez (2018)	Clinical diagnosis/PCL	/	C	NSC (SCS-SF self-judgement subscale, 3.8 (0.9))	/	PCL	50	38	69.4 (8.8)	
David et al. (2006)	DSM-IV	/	C	NSC (GSES, 25.1 (7.3))	29.28 (4.6), GP (Schwarzer, 1993)	PCL-C	38	38	74.9 (11.8)	
Munsey et al. (2018)	PCL-C	/	C	NSC (RSES, 12.45 (NR))	22.62 (5.80), GP (Sinclair et al., 2010)	PCL-C	40	38	NR	
Jindani and Khalsa (2015)	PCL-17	/	/	/	/	PCL-17	57	38	NR	
Rhodes (2015)	CAPS	/	C	/	/	CAPS	NR	CAPS scoring rules	NR	
Madsen et al. (2016)	ICD-10	/	C	/	/	/	/	/	/	
West et al. (2017)	CAPS	/	C	/	/	CAPS	45	CAPS scoring rules	73.94 (20.8)	
Yarborough et al. (2018)	Clinical diagnosis + PCL-C	/	C	/	/	PCL-C	NR	/	NR	
Matheson and Weightman (2019)	ICD-11	/	C	/	/	/	/	/	/	
Busuttil (2006)	DSM-IV	/	C	DR: (CAPS social subscale, 3.9 (0.3))	Clinical threshold = above 3 (Weathers et al., 1999)	CAPS	/	CAPS scoring rules	51.1 (6.5)	

AD = affect dysregulation; C = complex (repeated/multiple/sustained trauma type); CAPS = clinician administered PTSD scale; DR = relationship disturbances; DRES = Difficulties in Emotion Regulation Scale; GP = general population; GSES = General Self-Efficacy Scale; IASC-AD = Inventory of Altered Self-Capacities affect dysregulation scale; NR = not reported; NSC = negative self-concept; RSES = Rosenberg's Self-Esteem Scale; SCS = Self-Compassion Scale

'weak' quality using the EPHPP. The remaining studies were level 4 for a variety of reasons including a lack of randomization, control group and follow-up.

### 3.6. Characteristics of reintegration interventions

Table 5 shows a summary of the of the included studies and the reintegration or DSO measure(s) used in the study. Seven of the included interventions took place in the context of wider phased-based treatment (following phase one and two interventions, or phase two interventions only), while the remaining eight were standalone interventions. The number of sessions and time period varied significantly between interventions.

#### 3.6.1. Yoga (number of included studies = 4)

Three of the four studies examining yoga were from the same study centre and used overlapping samples (Rhodes, 2015; Van der Kolk et al., 2014; West et al., 2017). Participants in these three studies were all women who had experienced childhood abuse and undergone at least three years of trauma-focused therapy prior to participation. Participants in the study conducted by Jindani and Khalsa (2015) experienced mixed trauma types and were not reported to have had any

prior treatment. The yoga protocol in all studies focussed on breathing, postures, and meditation.

Three of the studies reported qualitative data and found similar themes describing an improved connection with, and sense of control over, participants' bodies, emotions and thoughts (Jindani & Khalsa, 2015; Rhodes, 2015; West et al., 2017). Two reported that this improved connection helped engagement in their personal relationships (Rhodes, 2015; West et al., 2017), while the other study reported that participants found being part of the group helped them feel connectedness (Jindani & Khalsa, 2015). The remaining yoga study was an RCT (Van der Kolk et al., 2014). This study used a women's health education programme as the control group and found a moderate effect size ( $d = -0.60$ ) for change in affect dysregulation in the yoga group pre- to post-intervention, but a small effect size ( $d = -0.38$ ) for the control group.

#### 3.6.2. Physical exercise (number of included studies = 3)

We reviewed two types of group physical exercise interventions: dance and movement therapy (DMT) (Kirk, 2014) and Basic Body Awareness Therapy (BBAT) (Madsen et al., 2016; Nordbrandt et al., 2020).

Table 3. CASP quality ratings.

	1. Clarity of research aims	2. Appropriateness of qualitative methodology	3. Appropriateness of research design	4. Appropriateness of recruitment strategy	5. Data collection appropriateness for research issue	6. Consideration of the relationship between researcher and participants	7. Ethical considerations	8. Sufficiently rigorous data analysis
Jindani and Khalsa (2015)	T	T	T	P	T	P	T	T
Rhodes (2015)	T	T	T	T	T	T	P	T
Madsen et al. (2016)	T	T	T	T	T	N	T	T
West et al. (2017)	T	T	T	T	T	N	T	T
Yarborough et al. (2018)	T	T	T	P	T	N	P	T
Matheson and Weightman (2019)	T	T	T	P	T	T	T	T
Busuttill (2006)	P	T	T	T	T	N	N	N
Bergen-Cico et al. (2018)	T	T	T	T	T	N	T	T

T = totally met, P = partially met, N = not met

The EPHPP global rating of quantitative studies was low with all studies scoring as weak, except Nordbrandt et al. (2020) which was scored moderate. Individual ratings are reported in Table 4.

Table 4. EPHPP quality ratings.

Reference	Selection bias	Study design	Confounders	Blinding	Data collection	Drop out	Global rating
van der Kolk et al. (2014)	S	S	W	M	W	S	W
Kirk et al. (2014)	S	S	W	W	S	W	W
Langer Ellison et al. (2018)	S	S	W	W	W	M	W
Nordbrandt et al. (2020)	S	S	W	M	S	M	M
Bergen-Cico et al. (2018)	W	S	W	W	S	S	W
O'Haire and Rodriguez (2018)	W	S	W	W	M	S	W
David et al. (2006)	W	W	N/A	N/A	W	S	W
Munsey et al. (2018)	W	W	N/A	N/A	S	W	W

W – weak, M – moderate, S – strong, N/A – domain is not appropriate to be assessed for this study design.

N.b. Ratings reflect the designs used to measure reintegration (not the overall study design).



**Table 5.** Characteristics of the included reintegration interventions.

Reference	Groups included	Intervention followed phase 1 and 2?	Intervention followed phase 2?	Sessions offered no. (hour, weeks/ months)	Time point of data collection	Measure(s) evaluated	Primary data interpretation method
van der Kolk et al. (2014)	Yoga Control	-	✓	10 (1 hr, 2.5 mths)	B, M (week 5), P	Reintegration DSO	Hierarchical linear and nonlinear modelling
Kirk (2014)	Physical exercise Control	-	-	8 (1.5 hr, 2 mths)	B, P	IASC-AD DERS	ANOVA
Langer Ellison et al. (2018)	Education support Control	-	-	24 (1 hour, 6 mths) 24 (1 hour, 6 mths)	B, M and P (6–10 weeks)	-	Least squares regression
Nordbrandt et al. (2020)	Physical exercise Control	✓	-	20 (1 hr, 5 mths) 20 (1 hr, 5 mths)	B, P	Time on educational activities WHO-5	Mixed model analyses
Bergen-Circo et al. (2018)	Service dog Control	-	-	20 (1 hr, 6–7 mths) V	B, P	SCS-SFQualitative question BSPWSWLS	Paired-sample <i>t</i> tests and linear regression Thematic analysis Linear mixed effects models
O'Haire and Rodriguez (2018)	Service dog Control	-	-	N/A 15 (12 hr, 3 weeks) N/A	B, P	-	-
David et al. (2006)	Self-defence Residential treatment	-	-	12 (3 hr, 3 mths) V	B, P (3 and 6 months) B, P	GSES RSES	Within-subject paired <i>t</i> tests Chi-squared test
Munsey et al. (2018)	Residential treatment	-	-	8 (1.5 hr, 2 mths)	P (1 week)	-	Thematic analysis
Jindani and Khalsa (2015)	Yoga	-	-	10 (1 hr, 2.5 mths)	P (8 weeks)	Interview	Hermeneutic phenomenological analysis
Rhodes (2015)	Yoga	-	✓	20 (1 hr, 5 mths)	P	Interview	Systematic text condensation
Madsen et al. (2016)	Physical exercise	-	✓	10 (1 hr, 2.5 mths)	P (8 weeks)	-	Content analysis
West et al. (2017)	Yoga	-	✓	10 (1 hr, 2.5 mths)	P	-	Thematic analysis
Yarborough et al. (2018)	Service dog	-	-	Not reported	P	-	Thematic analysis
Matheson and Weightman (2019)	Patient involvement in research	-	✓	-	-	-	-
Busuttil (2006)	Residential treatment	✓	-	30 (12 hr, 1.5 mths)	B and P (6 weeks, 6 months and 1 year)	-	/

B = baseline; BSPW = Bradburn Scale of Psychological Wellbeing; DRES = Difficulties in Emotion Regulation Scale; GSES = General Self-Efficacy Scale; IASC-AD = Inventory of Altered Self-Capacities affect dysregulation scale; M = mid-intervention; P = post-intervention; PRO = Patient-Reported Outcomes; RSES = Rosenberg's Self-Esteem Scale; SCS = Self-Compassion Scale Short Form; SWLS = Satisfaction With Life Scale; TAU = treatment as usual; V = varied between participants; WHO-5 = WHO-5 Well-being Index; WL = waitlist

In Kirk's (2014) study, DMT was delivered over eight weeks to the intervention group. The control group remained on a waitlist for 8 weeks of the study and was used as a waitlist control in this period, and then received a yoga intervention for 8 weeks and was used as an active control. Participants in this study had experienced mixed traumas, with sexual assault by a family member or someone known being the most common (32.4%). DMT consists of movement-based exploration of a reintegration theme (e.g. support, trust or empowerment). DMT invites participants to reflect on their experience of the movement exploration through journal writing and by sharing their experiences with the group. Participants in this study received concurrent talking therapy, however, it is unclear whether this involved trauma memory processing. This study used the Difficulties in Emotion Regulation Scales. An ANOVA found a significant decrease in overall emotional regulation difficulties for the DMT group pre- to post-intervention compared to the waitlist group ( $F = 7.14$ ,  $df = 1$ ,  $p < .018$ ). Although significant differences were found between the DMT and waitlist group, no differences were found when the DMT group was compared to the yoga group.

BBAT is led by physiotherapists and comprises of slow, guided exercises that aim to normalize and improve balance, awareness and muscle tension. All participants in the study conducted by Nordbrandt et al. (2020) were refugees, but trauma type was mixed. Participants all continued with treatment as usual (TAU) and there were two control groups: TAU only and TAU plus mixed physical activity. TAU consisted of a medication review and psychoeducation followed by CBT with acceptance and commitment therapy, stress management and mindfulness adaptations. Although this study found significant improvement on the World Health Organization Well-being Index (WHO-5) over time for the BBAT group ( $p < .0061$ ), there was no difference in change between the three groups ( $p < .721$ ). Qualitatively, participants reported that BBAT relived with pain, helped them to remain present, aided their sleep, helped their relationships with other people and increased their self-care (Madsen et al., 2016).

### **3.6.3. Service dog programmes (number of included studies = 3)**

Three service dog for veterans programmes from different sites in the USA were included (Bergen-Cico et al., 2018; O'Haire & Rodriguez, 2018; Yarborough et al., 2018). These programmes all involved participation in dog training and then the 'adoption' (ownership) of the dog. Each intervention varied the number of sessions offered based on the needs of the veterans.

In one study, participants lived at the site while they trained their dogs (O'Haire & Rodriguez, 2018).

These studies all found that service dog use was associated with increased social connectedness. Qualitative results from two studies found increased community participation, decreased isolation and reconnection with humans. Quantitative results from two studies found that the intervention was associated with significantly lower social isolation and significantly higher social functioning. O'Haire and Rodriguez (2018) also found measures for quality of life to be higher among those with service dogs, with medium to large effect sizes on the Bradburn Scale of Psychological Wellbeing ( $p < .001$ ,  $d = 0.81$ ) and Satisfaction with Life Scale ( $p < .003$ ,  $d = 0.59$ ), and Bergen-Cico et al. (2018) found significant increases in self-compassion ( $p < .02$ ) and self-judgement ( $p < .01$ ) within the intervention group. However, this study found no significant changes within the waitlist control group for self-compassion, self-judgement or isolation.

### **3.6.4. Residential treatment (number of included studies = 2)**

A rehabilitation programme for survivors of sex trafficking in San Diego was included (Munsey et al., 2018). This programme involved psychoeducation, psychotherapy and adjunct activities such as dance, yoga, financial skills, self-defence classes and job training. It is unclear whether the psychotherapy involved trauma memory processing. Regarding reintegration measures, this study found that the intervention was associated with improved self-esteem ( $p < .001$ ) on the Rosenberg Self-Esteem Scale (RSES), however, there was no control group to compare this to.

Secondly, a ninety day PTSD treatment programme in a UK hospital for survivors of childhood abuse was included (Busuttill, 2006). This followed a three-phase model of stabilization, trauma processing and reclaiming life interventions. The study had one group who all received the intervention. Phase three involved one-to-one short and long-term future planning through the 'Lines and Ladders' exercise. Goals were then shared in a group. This study noted that 23 out of 25 participants improved from a 'functional point of view.' This is described by examples of gaining employment or starting an education course.

### **3.6.5. Education support (number of included studies = 1)**

The education support programme was a stand-alone community-based intervention that used one-to-one peer mentors to support veterans to set and achieve

educational goals (Langer Ellison et al., 2018). The control group in this study received support for personal goals. After the intervention, the education support group spent significantly more time in educational activities than the control group ( $t = 3.38$ ,  $df = 31$ ,  $p < .002$ ).

### 3.6.6. Self-defence training (number of included studies = 1)

The 'Taking Charge' programme involved a stand-alone psychoeducation, personal safety and self-defence training in a group setting for women who had experienced military sexual assault (David et al., 2006). There were no significant changes in general self-efficacy pre- to post-intervention.

### 3.6.7. Patient involvement in research (number of included studies = 1)

The research involvement consisted of participants conducting research interviews on other people with CPTSD (Matheson & Weightman, 2019). It is reported that, for the peer researchers, the aim of the intervention was to give them the opportunity to build relationships through the process of training, supervision, interviewing and analysing data. All participants had completed at least 12 sessions of evidence-based treatment for PTSD. The study did not report how many interviews the participants conducted. The qualitative data reported found that participants reported social connection through the interviews and that this helped to promote recovery. Specifically, participants reported that they felt they had been given responsibility to help others who were in positions like that they had once been themselves.

## 3.7. Summary of secondary outcomes

### 3.7.1. Change in measure(s) of reintegration

Table 6 summarizes the changes in the measure(s) of reintegration reported in the four included quantitative studies that reported this outcome. All of these included a control group, two of which reported a significant difference ( $p < .05$ ) in the measure of reintegration between the intervention and control group after the intervention (Langer Ellison et al., 2018; O'Haire & Rodriguez, 2018) and two of which reported no significant difference pre- to post-intervention (Bergen-Cico et al., 2018; Nordbrandt et al., 2020).

### 3.7.2. Changes in measures of DSO symptom(s)

Table 7 shows the reported measures relating to DSO symptoms for the four included quantitative studies that reported this outcome. DSO symptoms significantly improved pre- to post-intervention ( $p < .05$ ) in three out of four studies (van der Kolk et al., 2014; Kirk et al., 2014; Munsey et al., 2018). Notably, neither of the two studies with a control group reported a significant difference between intervention and control groups on measures of DSO symptoms.

### 3.7.3. Changes in 'core' PTSD measures

Table 8 shows the 'core' PTSD measures for the ten studies that reported this. Compared to the control group, the intervention group was associated with improved 'core' PTSD symptoms ( $p < .05$ ) in four out of six studies including controls (Bergen-Cico et al., 2018; Kirk et al., 2014; O'Haire & Rodriguez, 2018; van der Kolk et al., 2014). Of all the ten included studies, six reported a significant ( $p < .05$ ) improvement in the measure of 'core' PTSD symptoms pre- to post-intervention.

**Table 6.** Summary of changes in measure(s) of reintegration pre- to post-intervention.

Reference	Measure	Baseline intervention group mean (SD)	Post- intervention group mean (SD)	Difference pre- to post-intervention	Difference between intervention and control groups
Langer Ellison et al. (2018)	Time on educational activities	NR	NR	$p < .002^*$	$p < .01^{**}$
Nordbrandt et al. (2020)	WHO-5	16.82 (NR)	23.52 (NR)	$p < .006^{**}$	No significant difference
Bergen-Cico et al. (2018)	SCS-SF	4.7 (1.4)	5.2 (1)	$p < .02^*$	No significant difference
O'Haire and Rodriguez (2018)	BSPW	NR	-0.9 (2.5)	NR	$p < .001^{**}$
	SWL	NR	18.8 (7.9)	NR	$p < .003^*$

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

**Table 7.** Summary of changes in measure(s) of DSO symptoms pre- to post-intervention.

Reference	Measure	Baseline intervention group mean (SD)	Post- intervention group mean (SD)	Difference pre- to post-intervention	Difference between intervention and control groups
van der Kolk et al. (2014)	IASC-AD	76.69 (14.83)	68.88 (13.31)	$p < .05^*$	No significant difference
Kirk et al. (2014)	DEERS	96.3 (16.5)	78.8 (19.9)	$p < .018^*$	No significant difference
David et al. (2006)	GSES	25.1 (7.3)	30.5 (6.0)	No significant difference	No control
Munsey et al. (2018)	RSES	NR	NR	$p < .001^{**}$	No control

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

**Table 8.** Summary of changes in PTSD scores pre- to post-intervention.

Reference	PTSD measure	Baseline intervention group mean (SD)	Post- intervention group mean (SD)	Difference pre- to post-intervention	Difference between intervention and control groups post-intervention
van der Kolk et al. (2014)	CAPS	73.94 (20.83)	49.48 (25.16)	$p < .001^{**}$	$p < .05^*$
Kirk et al. (2014)	PDS	32.5 (13.3)	22.5 (9.0)	NR	$p < .01^{**\dagger}$
Langer Ellison et al. (2018)	PCL	59.8 (16.38)	NR	NR	NR
Nordbrandt et al. (2020)	HTQ	3.17 (0.04)	3.00 (0.07)	$p < .002^*$	$p < .086$
Bergen-Cico et al. (2018)	PCL-M	63.9 (9.2)	60 (8.8)	$p < .03^*$	$p < .05^*$
O'Haire and Rodriguez (2018)	PCL	69.4 (8.8)	58.2 (13.1)	$p < .001^{**}$	$p < .001^{**}$
David et al. (2006)	PCL-C	74.9 (11.8)	57.6 (24.9)	No significant difference	No control
Munsey et al. (2018)	PCL-C	NR	NR	$p < .001^{**}$	No control
West et al. (2017)	CAPS	73.94 (20.83)	49.48 (25.16)	NR	No control
Busuttil (2006)	CAPS	51.1 (6.5)	28.8 (13.1)	$p < .05^*$	No control

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

†Difference between DMT and waitlist control

**Table 9.** Summary of themes from qualitative outcomes reported as effective for reintegration.

Reference	Facilitated connection with self	Facilitated connection with others	Enhanced wellbeing	Career changes	Increased self-care	Emotion regulation	Empowerment	Increased sense of self-worth
Jindani and Khalsa (2015)	✓	✓	✓	✓	✓	✓	—	—
Rhodes (2015)	✓	✓	✓	—	✓	✓	—	—
Madsen et al. (2016)	✓	✓	—	—	—	✓	—	—
West et al. (2017)	✓	✓	—	—	✓	—	✓	—
Yarborough et al. (2018)	—	✓	—	—	—	—	—	✓
Matheson and Weightman (2019)	—	✓	—	—	—	—	—	✓
Busuttil (2006)	—	—	—	✓	—	—	—	—
Bergen-Cico et al. (2018)	—	✓	✓	—	—	—	✓	—

✓ Theme reported

— Theme not reported

### 3.8. Summary of the qualitative data

We collated the qualitative themes identified in the included papers into eight categories. As shown below in Table 9, facilitation of connection with others was the most common theme in the included studies, with all but one qualitative study reporting this.

## 4. Discussion

### 4.1. Summary of evidence

In this systematic review we sought to better understand what reintegration interventions are being used for people with CPTSD and their effectiveness. We included a total of 15 studies describing interventions including yoga, physical exercise, service dogs, residential treatment, education, self-defence and patient involvement in research. Of the eight quantitative studies, one had a 'moderate' EPHPP rating while the remainder had a 'weak' rating.

The four studies that reported a measure of reintegration all included a control group, and two of these studies reported a statistically significant improvement in the measure between the intervention and control group after the intervention. With regards to DSO symptoms, three of the four studies that reported these measures found a statistically significant improvement pre- to post-intervention. However, in the two studies that used a control group, this improvement was not significant compared to the

control. Four of the six included studies with a control group reported a significant improvement on the measure of 'core' PTSD symptoms between groups post-intervention. Of ten studies that reported change in 'core' PTSD symptoms, six found reintegration interventions to be associated with improvement in 'core' PTSD symptoms, however, research without a control group needs to be interpreted with caution.

The main findings from the available qualitative research were that interventions involving service dog, yoga, Basic Body Awareness Therapy (BBAT) and research involvement could facilitate connection with others, and that yoga and BBAT interventions could help to facilitate connection with the self through increased self-care. While three of the CASP criteria were totally met by all studies, there was variation in the other criteria. Further, all qualitative studies were level 4 on the Oxford Centre for Evidence-Based Medicine Levels of Evidence.

Debate continues as to whether a phased-based approach enhances treatment outcomes for people experiencing CPTSD. The 2012 ISTSS guidance advocates for phased-based approaches for the treatment of CPTSD (Cloitre et al., 2012), while other recent research has suggested that trauma memory processing alone can be effective in reducing CPTSD symptoms (Dedert et al., 2020; Oprel et al., 2021; Voorendonk, de Jongh, Rozendaal, & van Minnen, 2020). Reintegration interventions are not necessarily intended to impact on 'core' PTSD or DSO symptoms directly, however, this review

suggests that they might do so, with four of the six studies with a control group reporting significantly reduced 'core' PTSD symptoms in the intervention group compared to the control groups post-intervention and three of the four studies that reported DSO measures finding a statistically significant improvement pre- to post-intervention. These findings lend weight to reintegration interventions potentially being considered in the discourse regarding treatment for CPTSD and the contribution they may make to the multicomponent treatment of CPTSD.

Qualitative data from this review suggests that reintegration interventions could help facilitate connection with others. As a related construct, this could help facilitate improvements in relationships for people with CPTSD. Our findings from the included qualitative studies underlines the importance of qualitative research in this emerging field as it highlights an area that was not picked up by quantitative data. Simon, Roberts, Lewis, Van Gelderen, and Bisson (2019) found evidence suggesting that perceived social support is lower in individuals presenting with CPTSD compared to those with PTSD (OR = 0.78,  $p < .05$ ). Reintegration interventions therefore offer potential in facilitating more positive relationships for people with CPTSD. The importance of work on relationships is highlighted in a study conducted by Okech, Hansen, Howard, Anarfi, and Burns (2018) that suggested that community reintegration indirectly influenced PTSD by increasing perceived social support.

In sum, phase three interventions could aid reintegration, and may also indirectly impact on 'core' PTSD symptoms and the DSO symptoms of CPTSD. However, as highlighted by the quality appraisals and the Oxford Centre for Evidence-Based Medicine Levels of Evidence, the current evidence is limited in methodological rigour. The latter arguably does not weigh qualitative research fairly as the richness of the data collected is not considered. Nevertheless, more high-quality research is needed before conclusions can be drawn about the effectiveness of the addition of interventions aimed at reintegration.

#### **4.2. Methodological issues regarding research on reintegration**

We included studies with reintegration aims, including distinct aspects of reintegration (e.g. education), as defined by the ISTSS (Cloitre et al., 2012). Therefore, the included studies used a wide range of reintegration outcome measures. This makes comparison of the effectiveness of interventions of reintegration difficult. For example, not all interventions included investigated relationships and studies that did measure changes in relationships used different outcome

measures. None of the included studies used the Work and Social Adjustment Scale (WSAS) which is a commonly used measure of social functioning which could be used to measure how much someone's CPTSD impacts their ability to function at work, manage the home, engage in social and private activities and form and maintain relationships. However, with the exception of Matheson and Weightman (2019), none of the included studies made reference to the ISTSS phase-based model of treatment. The WSAS could be considered for use for studies on reintegration until a more appropriate measure based specifically on the conceptual understanding of reintegration is developed to compare the effectiveness of different reintegration interventions.

We included research specifically focused on the third of the three phases of support for CPTSD, as described by the ISTSS guidelines ((Cloitre et al., 2012) and therefore excluded studies explicitly evaluating phase one and two. However, it should be noted that some interventions primarily aimed at stabilization, and therefore conducted as part of phase one treatment prior to phase two memory processing, do contain some aspects of treatment which could be argued to facilitate reintegration, such as teaching affect regulation skills. As argued by the ISTSS, the phase-based approach is intended to be cyclical, with the client going back and forth between the phases (Cloitre et al., 2012), therefore phase one interventions, whilst excluded from this review, could have some overlapping aims in the competencies they aim to improve. Further, reintegration is intended to be offered as part of the phase-based approach to treatment, however, many of the included studies were not preceded by phase one or two interventions. Therefore, it is not possible to draw conclusions on the effectiveness of reintegration interventions in the context of a phase-based approach to treatment.

#### **4.3. Reintegration and treatment guidance**

The ISTSS recommendations for a phased-based approach to the treatment of CPTSD were based on one round of expert opinion and nine published studies that involved participants with a history of complex trauma in which CPTSD symptoms were the targets of treatment (Cloitre et al., 2011, 2012). None of the nine studies examined phase three interventions. Further, in the survey, experts were not asked about phase three, except with regards to its duration where the most commonly rated duration was 3 months (Cloitre et al., 2011). It should be noted, under 'coping skills,' experts endorsed a need for work on 'interpersonal/social skills' (Cloitre et al., 2011, p. 620), which could be argued to be a target area of reintegration. It is not clear how these nine studies were selected to be included in the ISTSS

guidelines and only two of these nine studies were RCTs, while only three followed up participants. Therefore, it appears that the ISTSS suggestions for reintegration are based on a low level of evidence.

Since the 2012 guidelines were published, the ISTSS Guidelines Position Paper suggested a ‘personalizing medicine’ approach to treatment of CPTSD (Berliner et al., 2019). Reintegration interventions could provide a useful addition to CPTSD treatment to help to personalize treatment through specific interventions dependent on the client’s needs as each individual may require different interventions in line with their therapeutic goals, as in other phases of CPTSD treatment. In sum, since reintegration was recommended by the ISTSS as part of the phase-based approach for CPTSD, it has been overlooked and under-researched. However, it may have potential to be useful to personalize treatment.

#### **4.4. Strengths and limitations**

We followed best practice by pre-registering our study with PROSPERO and adhering to PRISMA guidance. To ensure reliability throughout the review process, we used two independent reviewers for full-text screening, data extraction and critical appraisal. We tried to include all relevant evidence in our review by conducting our search over four databases and by searching grey literature. We also had broad search criteria, for example, we included interventions of any length in our review.

We may, however, have excluded potentially relevant research by only including studies published in English due to the limitations of the research team, or interventions relevant to other definitions of reintegration other than that proposed by the ISTSS. We could have incorrectly excluded some studies if they did not report on measures meeting our CPTSD proxy or outcome criteria. Further, the use of the CPTSD proxy measures might introduce measurement bias as the measures used might not accurately reflect CPTSD diagnoses. Although this is a limitation, due to the lack of literature on CPTSD, proxy criteria allow for consideration of research potentially relevant to the new diagnosis of CPTSD. To ensure we used proxy criteria as appropriately as possible, we based our proxy criteria on previously published criteria on CPTSD (Karatzias et al., 2019).

There are some inherent limitations of the included literature, the first being the lack of literature on reintegration interventions and its low quality. Due to the paucity of studies and heterogeneity of outcomes and controls, it was not possible to conduct a meta-analysis. Although the review included a variety of different types of interventions, there were a small number of studies of each intervention type, some of which were from the same research centres. Overall,

therefore, we recommend caution when considering the generalisability of the findings, especially due to the heterogeneity in reintegration measures and populations used in the included studies.

#### **4.5. Future research**

Although some positive outcomes of reintegration interventions were found, evidence is currently limited supporting the recommendation of a reintegration phase of treatment for CPTSD as initially recommended by the ISTSS. It is not possible to know whether reintegration is a necessary phase of treatment until we are clearer on what it should involve and how to measure it. Firstly, there is a need to develop an empirically valid measure of reintegration in samples with CPTSD. This is essential for evaluating whether interventions designed to increase reintegration effectively do so. In turn, this will help us to answer the question of whether reintegration interventions enhance treatment for CPTSD. Secondly, research is needed involving people with lived experience of CPTSD and expert clinicians to develop important principles and intervention content for reintegration to ensure that such interventions are both feasible within services and acceptable to clients (Trivedi & Wykes, 2003).

This will allow for further research to determine whether reintegration interventions are helpful to enhance treatment for CPTSD. In line with ISTSS suggestions for research (Cloitre et al., 2012), there will be a need to assess whether there are greater benefits from phase-based protocols compared to established treatments focusing on the ‘core’ symptoms of PTSD. It is important that future research considers and compares all three phases of ISTSS recommended treatment in order to better understand their relative contributions to CPTSD treatment. Research of a high Oxford Centre for Evidence-Based Medicine Level of Evidence is needed with careful development and evaluation with appropriate control groups. For this to be possible, there is a need to prioritize funding resources. In sum, further research into reintegration interventions is needed to establish the best patient-centred and multicomponent interventions for people with CPTSD.

#### **4.6. Conclusion**

We have provided an essential overview of reintegration interventions that have been reported for people with PTSD who meet CPTSD proxy criteria and discussed preliminary evidence for the effectiveness of these interventions. We found some preliminary evidence that suggests that reintegration interventions can reduce ‘core’ PTSD symptoms, improve

reintegration outcomes, facilitate connection with others and increase care for self. However, existing literature is limited in methodological quality and provides only weak evidence for the effectiveness of phase three reintegration interventions. Research in this area is still in its infancy and the current scope and quality of research is lacking. Further research is needed to explore these, and other interventions, to provide guidance for reintegration in CPTSD. We hope that this review can guide future research and clinical guidance on the treatment of CPTSD.

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## Availability of Data and Materials

Data included in this review is already available in the public domain.

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