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Evaluating the Effectiveness of Phase-Oriented Treatment Models for PTSD-A Meta-Analysis

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Abstract

It has been suggested that treatments for Post-Traumatic Stress Disorder (PTSD) be framed within a staged or Phase-Oriented model, particularly in cases of increased trauma symptom severity and Complex PTSD (CPTSD). However, ambiguity remains around this model's definition and efficacy. The present literature review aimed to examine the efficacy of treatments adopting a Phase-Oriented model for individuals with PTSD symptoms with a sub-analysis of a potential high complexity sample. A systematic search of the literature found 1180 articles, of which 13 met pre-defined criteria. In order to analyse effect sizes, a random effects meta-analysis was conducted. The analysis showed a large effect size in the differences between beginning and end of treatment time points on PTSD symptoms ($d = 1.77$, 95% CI [1.45 to 2.08], $Z = 10.97$; $p < .001$) with moderate heterogeneity. A sub-analysis showed that the large effect size was maintained when compared with control groups ($d = 0.82$, 95% CI [0.29 to 2.29], $Z = 3.04$; $p < .005$). Further sub-analysis of a pre-defined potential high complexity population also revealed a large effect size ($d = 1.39$, 95% CI [0.99 to 1.79], $Z = 6.79$; $p < .001$). Results concurred with previous literature supporting the effectiveness of Phase-Oriented models for PTSD symptoms but limitations existed in finding appropriate definitions of the model, symptom severity, appropriate control groups, and generalising findings.

Keywords: Complex PTSD, Phase-oriented therapy, Stabilization, Trauma Therapy

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Introduction

Current best practice guidelines recommend trauma memory reprocessing and exposure based interventions in the psychological treatment of Post-Traumatic Stress Disorder (PTSD) (NICE, 2005). Several studies have highlighted the efficacy of such unimodal approaches in empirical research (Ehlers, Clark, Hackmann & Grey, 2010; Van der Kolk et al., 2007). Specifically, Trauma Focused Cognitive-Behaviour Therapy (CBT), Prolonged Exposure (PE), and Eye-Movement Desensitization and Reprocessing (EMDR) have been shown to be most effective treatments for PTSD, maintaining their efficacy at follow up points (Cusack et al., 2016; Van Etten & Taylor, 1998).

Although these approaches have shown efficacy and large effect sizes in PTSD symptom reduction (Bisson, Roberts, Andrew, Cooper & Lewis, 2013; Cusack et al., 2016), this has often been in populations with relatively circumscribed traumatic experiences, and research trials are less likely to include samples with higher complexity trauma (McFetridge et al., 2017). Furthermore, the large effect size of treatments is reduced in samples where there is heightened trauma severity such as a history of childhood abuse, compared with placebo and inactive controls (Ehring et al., 2014). Therefore, unimodal approaches yielding large effect sizes, such as Trauma Focused CBT, are often supported by evidence for treatments of non-complex presentations and so cannot necessarily be translated to the needs of individuals with complex traumatic reactions (Corrigan & Hull, 2015; van der Kolk, Roth, Pelcovitz, Sunday & Spinazzola, 2005).

When defining and highlighting the difference in PTSD and Complex PTSD, authors have stated the need for a separate Complex PTSD (CPTSD) classification, given its unique symptoms, compared to single incident PTSD (Cloitre et al., 2013, Herman, 1992a). Since then, the ICD-11 (World Health Organization, 2018), has added CPTSD as a distinct diagnostic

category, characterized by six symptom areas; re-experiencing, avoidance, sense of threat, as well as emotion dysregulation, negative self-concept, and interpersonal disturbance symptoms. Recently, reviews of the literature have supported a distinction between PTSD and CPTSD symptomology (Brewin et al., 2017). It has also been found through empirical literature that trauma type significantly predicts trauma complexity, in that a dose-response relationship has been found in relation to childhood trauma and CPTSD symptoms (Hyland et al., 2017). As described, emotional dysregulation is one symptom area that has been highlighted as fundamentally linked to trauma related pathology (McLean & Foa, 2017; Seligowski, Lee, Bardeen, & Orcutt, 2014). Among the research showing that trauma severity predicts symptom severity (Cloitre et al., 2013), research showed that childhood trauma increases emotional dysregulation in adulthood along with other CPTSD symptoms (Dvir, Hill, Ford, & Frazier, 2014; McClean & Gallop, 2003).

Many clinicians and researchers have asserted that the current evidenced approaches are less effective for higher complexity presentations, such as CPTSD, and could potentially be unsafe if applied to individuals with severe, chronic and CPTSD presentations (Ford, Courtois, Steele, van der Hart, & Nijenhuis, 2005; Matheson, 2016). Alternatively, interventions delivered in a Phase-Oriented approach may be more helpful in this type of population, given that a main treatment target is to first establish stabilization in the form of managing symptoms (Courtois & Ford, 2013). This approach has been supported by clinicians in a study showing that 84% of experts endorse a Phase-Oriented treatment approach for CPTSD (Cloitre et al., 2012). Therefore, it is critical that research further examines the efficacy of the phase-oriented approach as a potentially more appropriate alternative in certain PTSD presentations. Phase-Oriented treatment of trauma traditionally adopts three broad stages; 1) stabilization aimed at providing resources to the client; 2) treatment of trauma memories, usually through exposure and trauma memory reprocessing and (Foa, Keane, Friedman &

Cohen, 2008), and 3) reintegration of previous life goals (Herman, 1992b). Currently the mainstream Phase-Oriented treatments include Skills Training in Affect and Interpersonal Regulation (STAIR) with Prolonged Exposure and Dialectical Behaviour Therapy with Prolonged Exposure (DBT-PE), both of which have empirical support (Cloitre, Koenen, Cohen & Han, 2002, Linehan, 2014). What should be documented is how this approach differs to unimodal approaches, such as Cognitive Processing Therapy which does not implement a stabilization phase before moving into exposure (Resick & Schnicke, 1993). Whereas in the Phase-Oriented approach a discreet amount of time is given to the implementation of specific therapeutic tasks, usually skills-based, in order to reduce symptoms, usually emotion-dysregulation and/or interpersonal difficulties before moving into an exposure and reprocessing phase. Therefore, a phase-oriented approach may be best suited to higher complexity presentations, including those seen in CPTSD.

One of the current questions is the overall efficacy of interventions that employ a Phase-Oriented approach to PTSD treatment, particularly in relation to higher complexity presentations. Although recent meta-analysis found effectiveness of certain interventions of CPTSD (Karatzias et al, 2019), no systematic review has examined the extant evidence base regarding phase-oriented treatments for PTSD or CPTSD symptoms. An unsystematic review by Cloitre et al. (2012) found large effect sizes in literature utilizing stabilization treatments, but only a minority of these studies investigated stabilization with exposure and trauma memory reprocessing, and appropriate control groups were not present. These criticisms have been highlighted elsewhere, and the debate continues as to whether there is value in implementing stabilization skills, such as emotion regulation, prior to exposure based interventions (de Jongh et al., 2016; McLean & Foa, 2017).

The present review used the PICOS framework (population, intervention, comparison, outcome, and study design) to firstly investigate if psychological interventions adopting a

Phase-Oriented treatment approach were potentially helpful treatments for reducing PTSD symptoms. Secondly, the review aimed to measure if the effect size was maintained when comparing the studies with their control groups. Third, the review aimed to investigate the efficacy of this intervention type in a potential high complexity PTSD sample. The review was registered with PROSPERO and was not subjected to any formal ethical board reviews.

Method

Operational Definitions

Considering the lack of agreement on formal definitions of several concepts relevant to this review (e.g., Phase-Oriented treatment, CPTSD), a set of working definitions were operationalized based on best available evidence in the current literature base. Along with using the PICOS framework, this facilitated the search strategy and created part of the inclusion criteria for the analysis.

Phase-Oriented approach

In keeping with mainstream discourse on this approach (Courtois & Ford, 2013; Herman, 1992b), an intervention adopting a Phase-Oriented approach to PTSD was defined as having 2 or more distinct stages. The first phase was conceptualized as an explicit stabilization intervention, followed by a second stage of treatment involving exposure and trauma memory reprocessing. In this way, the Phase-Oriented definition went beyond unimodal protocols (Foa et al., 1994; Rescik & Schnike, 1993) in order to implement a distinct skills phase, before the implementation of an exposure and trauma memory reprocessing treatment. This corresponded to the literature base on interventions which have focused on a two-phase model (Cloitre et al., 2002, 2010; Harned et al., 2014).

Stabilization

Stabilization can be conceptualized as providing skills to the client before beginning exposure to the trauma memory and has been deemed an important precursor in complex

populations (e.g., CPTSD, childhood trauma) due to the noted difficulties in emotional regulation. In the present study, the stabilization phase referred to interventions that developed skills in increasing emotion regulation, such as relaxation and breathing skills, as well as manualized skills based approaches such as STAIR and DBT which are distinct from the exposure and trauma memory reprocessing procedures used. Defining stabilization in terms of affect regulation also corresponds to the symptom cluster associated with CPTSD (WHO, 2018).

Exposure and trauma memory reprocessing

This phase of treatment was defined as any intervention which involved techniques of exposure to the trauma memory and engaged in trauma memory re-processing. This included exposure protocols, such as those used in Prolonged Exposure, Narrative Exposure, Cognitive Processing Therapy, Trauma Focused CBT, and EMDR. Therefore, any study that stated explicitly the use of an intervention focusing on exposure to trauma memory (and meeting the Phase-Oriented, and stabilization definitions provided) was considered for inclusion.

Trauma complexity

A sub-analysis of the efficacy of Phase-Oriented treatment approaches in more complex populations was conducted. In keeping with the substantive research base linking childhood trauma to CPTSD symptoms (e.g., Dvir, Hill, Ford, & Frazier, 2014; Hyland et al., 2017; McClean & Gallop, 2003), studies investigating childhood trauma and PTSD symptoms were analysed as a *potential high complexity* subgroup. This definition was then used when considering studies for a sub-analysis, examining effects of the treatment utilising a Phase-Oriented model.

Inclusion and Exclusion Criteria

It was proposed that each study met a list of criteria in order to be included in the review. Inclusion criteria were that articles utilized an adult clinical sample, participants had a

diagnosis of PTSD or were reporting PTSD symptoms on a standardized symptom measure, the measure of efficacy was a measure of PTSD symptoms taken at beginning and end of treatment time points, articles used quantitative analyses, were in the English language, from the year 2000 to present and in a peer reviewed journal. Exclusion criteria were the use of child and adolescent samples, case study designs, qualitative designs, articles not measuring PTSD symptoms, articles in languages other than English, articles before 2000 and not appearing in peer reviewed journals.

Search Strategy

A range of search engines were used to find published research literature. These were Ovid MEDLINE, Ovid PSYCHINFO, and ISI Web of Science. Studies were sought from January 2000 onwards to ensure that the interventions were in keeping with current best practices. As the study sought clinical trial studies, grey literature was not searched, as these studies are not usually peer reviewed and so quality could not be assured. References of the final articles were hand searched to maximize collection. Search terms were based on scoping searches of the literature. Search terms were 1. (Posttraumatic Stress Disorder (subject heading) or Posttraumatic stress disorder or PTSD (Keywords)), AND 2. (stabilization OR "emotion regulation" OR "emotion tolerance" OR "emotion management" OR "affect regulation" OR "affect tolerance" or "affect management" OR "stress inoculation" OR relaxation OR "breathing retraining" OR "Dialectical Behaviour Therapy" OR "DBT" OR "skills training" (keywords)) (as well as their truncated versions), OR 3. ("phase oriented" OR "phase based" OR "stage based" OR sequential OR "Phase-Oriented" OR "phase-based" OR "stage-based" (keywords)). Exposure and trauma memory reprocessing search terms were not added as this may have filtered out studies which did not self-define as using stabilization or Phase-Oriented treatments but did in fact meet the definitions of the review.

Identified Articles

This design followed the PRISMA guidelines. As can be seen in Figure 1, the search strategy revealed 2027 studies from the three databases. After duplicates were removed 1178 remained for which titles and abstracts were screened. After screening for eligibility 1132 were excluded (1062 did not meet the parameters of intervention definitions, 25 were studies using child and adolescent samples, 45 were theoretical articles or literature reviews). 46 full text articles were then screened for eligibility and a further 35 were removed (33 did not meet the parameters of the intervention definitions and two articles were theoretical in nature or literature reviews). The references of the final articles were then searched, yielding 2 more appropriate studies, providing a total of 13 eligible studies.

Table 1 Study Characteristics.

* = studies only providing intent to treat analysis, ** = studies meeting criteria for potential high complexity trauma sample, Dur Stab = Duration of Stabilisation, Dur Exp = Duration of exposure, HTQ = Harvard Trauma Questionnaire, PSS-I = PTSD Symptom Scale-1, CAPS = Clinician Administered PTSD Scale, CAPS-2 = Clinician Administered PTSD Scale-2, PSS-SR = PTSD Symptom Scale-Self Report, IES = Impact of Events Scale, PDS= Post-Traumatic Stress Diagnostic Scale, SPTSS = The Severity of Post-Traumatic Symptom Scale, PDS = Post Traumatic Stress Diagnostic Scale.

Author	Population	Control group	Emotion regulation method	Exposure method	Additional stabilisation	Dur stab	Dur exp	Phase-Oriented treatment (n)	PTSD Measure used
Bohus et al. (2013) **	Adults with PTSD diagnosis relating to CSA, with and without BPD	Waitlist	DBT skills	Exposure Therapy	DBT - skills training, group intervention, creative arts sessions, and psycho-education	4 weeks	6 weeks	Stabilisation and Exposure therapy (n=29)	CAPS
Bryant et al. (2013)	Adults with PTSD diagnosis	Supportive counselling	Emotion regulation training	CBT with Imagined exposure	Psycho-education	5 sessions	6 sessions	Stabilisation and CBT with Imagined exposure (n=36) *	CAPS-2
Cloitre et al. (2002) **	Adults with PTSD diagnosis relating to childhood abuse	Waitlist	STAIR	Modified PE	-	8 sessions	8 sessions	Stabilisation and PE (22)	CAPS
Author	Population	Control group	Emotion regulation method	Exposure method	Additional stabilisation	Dur stab	Dur exp	Phase-Oriented treatment (n)	PTSD Measure used

Cloitre et al. (2010) **	Adults with PTSD diagnosis relating to childhood abuse	Supportive counselling	STAIR	PE	-	8 sessions	8 sessions	Stabilisation and PE (33) *	CAPS
Crespo, M., & Arinero, M. (2010)	Female victims of intimate partner violence with Post-Traumatic Stress Symptoms	Communication skills	Arousal control procedure	Imagined exposure	Behaviour activation, self-esteem, problem solving, cognitive restructuring	7 sessions	2 sessions	Stabilisation and Imagined Exposure (n=28)	SPTSS
Frueh et al. (2009)	Adults with schizophrenia or schizoaffective disorder and PTSD diagnosis	-	Anxiety management skills training	Imagined exposure	Psycho-education, social skills communication training	14 sessions	8 sessions	Stabilisation and Imagined Exposure (n=13)	CAPS
Author	Population	Control group	Emotion regulation method	Exposure method	Additional stabilisation	Dur stab	Dur exp	Phase-Oriented treatment (n)	PTSD Measure used

Harned et al. (2012)	Women with BPD, PTSD diagnosis, and self-injury	-	DBT skills	PE	Full DBT protocol	1 year	13 sessions (mean)	Stabilisation and PE (n=7)	PSS-I
Harned et al. (2014)	Women with BPD, PTSD diagnosis, and self-injury	DBT	DBT skills	PE	Full DBT protocol	1 year	12.7 sessions (mean)	Stabilisation and PE (n=5)	PSS-I
Hinton et al. (2005)	Cambodian adult refugees with treatment resistant PTSD diagnosis and panic attacks	Waitlist	Arousal related reduction skills	Exposure narrative and recall	Psycho-education, cognitive restructuring	-	-	Stabilisation and Exposure narrative (n=20)	CAPS
Ironson et al. (2002) (EMDR)	Adults with PTSD diagnosis	-	Distress reduction techniques	EMDR	Psycho-education	2 sessions	3 sessions	Stabilisation and EMDR (n=6)	PSS-SR
Author	Population	Control group	Emotion regulation method	Exposure method	Additional stabilisation	Dur stab	Dur exp	Phase-Oriented treatment (n)	PTSD Measure used

Ironson et al. (2002) (PE)	Adults with PTSD diagnosis	-	Distress reduction techniques	PE	Psycho-education	2 sessions	3 sessions	Stabilisation and PE (n=6)	PSS-SR
Lee et al. (2002)	Adults with PTSD diagnosis (recent trauma)	-	Stress Inoculation Training	PE	-	-	-	Stabilisation and PE (n=12)	IES
Schubert et al. (2016)	Adults exposed to political violence with PTSD symptoms	-	Calm breathing and safe place techniques	EMDR	-	1 session	10 sessions	Stabilisation and EMDR (n=21)	HTQ
Steil et al. (2011) **	Adults with PTSD diagnosis relating to CSA, residential treatment	-	DBT skills	Exposure Therapy	DBT group, and psycho-education	-	-	Stabilisation and Exposure therapy (n=25)	PDS

Data Analyses

Studies were then assessed for eligibility by an independent judge to ensure consistency and an inter-rater analysis was carried out using the Kappa coefficient. Each study was then cross checked for quality and given a rating on a quality assessment measure (National Heart Lung and Blood Institute, 2014). A random effects meta-analysis was then conducted using Cohen's d (Cohen, 1992). Subgroup data was then collected for those studies where a control was used and for studies which described using samples reporting a history of childhood abuse.

Results

Analysis

Data was analysed using Review Manager (RevMan) version 5 and obtained from the Cochrane Community. Within-group effect sizes (Cohen's d) were calculated for each included study using the Standard Mean Difference, through inputting means and standard deviations at beginning and end of treatment time points on the PTSD symptom measure for the treatment groups. Where possible these were calculated for those participants who had completed measures, rather than the intent-to-treat analysis data. In order to ensure that the effect size was reliable, a sub-analysis of between-group effect sizes was calculated for those studies which utilized a control group. Finally, once an overall effect size had been obtained from the main analysis, a subgroup analysis, utilising within group effect sizes, was carried out on studies where samples consisted of participants reporting childhood abuse. A random effects model provided the average effect size in each analysis.

Study Characteristics

Table 1 outlines the studies included in the analysis. The population is described in terms of its clinical presentation, and as can be seen all samples are reporting PTSD symptoms. The emotion regulation methods used at phase one are described. Duration of this phase lasted up to 1 year. Exposure and trauma memory reprocessing methods used in phase 2 consisted of EMDR, Prolonged Exposure, Imagined Exposure, Narrative Exposure Therapy, and exposure therapy. Duration of this phase ranged from 3 sessions to 12 sessions. Any additional stabilization was accounted for and the nature of the Phase-Oriented treatment described. The outcome measures used were all measures of trauma symptoms. Overall the 13 studies represented 14 Phase-Oriented treatment conditions, and an overall sample of $n = 227$ at the beginning of treatment and $n = 226$ at the end of the treatment time points.

The sub-analysis of the potential high complexity studies consisted of DBT and STAIR emotion regulation strategies. Exposure and trauma memory reprocessing interventions were Prolonged Exposure and exposure therapy. Stabilization interventions varied between 8 sessions and 4 weeks, and exposure and trauma memory reprocessing interventions varied between 8 sessions and 6 weeks. The subgroup sample size was $n = 109$.

INSERT TABLE 1 HERE

Quality of Articles Obtained.

Of the 48 full texts remaining for screening the inter-rater agreement was deemed acceptable; $\kappa = .951$ ($p < .0001$). Each of the studies was considered to have a strong quality rating by both judges.

Calculations of Effect Size

The overall mean effect size for the 14 interventions was $d = 1.77$ with 95% confidence intervals between 1.45 and 2.08 ($Z = 10.97$; $p < .001$). Effect sizes ranged from $d = 0.82$ to $d = 3.07$. All outcomes showed improvement on PTSD symptoms, which is outlined in the forest plot (figure 2). Moderate heterogeneity was observed between the studies ($Q = 26.88$; $p < .05$), and 52% of the variance in the overall effect size was due to variance between the studies ($I^2 = 52\%$).

INSERT FIGURE 2 HERE

Sub-analysis 1; control group comparison

When carrying out the sub-analysis for the seven studies which utilized controls, the between group effect size was reduced, although was still classified as large $d = 0.82$ (CI [0.3 to 2.29], $Z = 3.04$; $p < .005$).

Sub-analysis 2: potential high complexity analysis.

Four studies were identified for the potential high complexity sample (see table 1). Again, when isolating those studies which met the criteria for a potential high complexity sample, a sub-analysis of within group effect sizes from before and after treatment revealed a large effect size, $d = 1.39$ (CI [.99 to 1.79], $Z = 6.79$; $p < .001$).

Discussion

This review of the literature is the first to have systematically defined and searched for psychological interventions that adopted a Phase-Oriented approach to PTSD and evaluated their overall effect on symptoms. This analysis showed that Phase-Oriented treatments, as defined here, are effective treatment models for post-traumatic stress symptoms. Through conducting a meta-analysis of 13 studies, for which there were 14 independent treatment groups, the overall effect size was considered to be large (Cohen, 1992). Although the meta-analysis did not use a comparison group or compare the efficacy of Phase-Oriented approaches to unimodal interventions (e.g., EMDR), the large effect size was maintained in a sub-analysis comparing treatments with their controls. Moreover, when isolating a sample who met a definition of a potential high complexity population, i.e. childhood trauma, the large effect size was also maintained. Although these findings should be taken cautiously, the results suggest that there may be efficacy in using this Phase-Oriented treatment approach in treating PTSD symptoms and expanding it to evaluate its effectiveness across complex trauma presentations.

Given the research which has shown emotion dysregulation as a fundamental difficulty in PTSD (Seligowski et al., 2014), the current study suggests that implementing a discrete and focussed phase of emotion regulation skills, as well as other stabilization strategies, before established exposure and trauma memory reprocessing treatments could be of therapeutic benefit, as is promoted in clinical practice texts (Courtois & Ford, 2013; Ford et al., 2005; Herman, 1992b). As there were no unimodal controls, it is not possible to say that Phase-Oriented approaches show higher efficacy than active unimodal approaches. What can be surmized is that when compared with the extant literature, best practice unimodal therapies such as EMDR and Trauma Focused CBT have equivocal effects (Bisson et al., 2013) and are comparable with the current study. For example, through large scale meta-

analysis, large effect sizes have been found for Trauma Focused CBT ($d = 1.62$) and EMDR ($d = 1.17$) when compared to waitlist controls (Bisson et al., 2013), concurrent with the present results. Furthermore, when delivered to participants with a history of childhood abuse, a meta-analysis of trauma focused treatments revealed a large effect size between start and end of treatment ($g = 1.24$) (Ehring et al., 2014). Again, this beginning to end of treatment large effect size is consistent with the current findings.

The variance in effect sizes across the studies in the present review revealed intricate trends. Some interventions used lengthy and robust evidence based stabilization methods such as DBT (Steil et al., 2011; Bohus et al., 2013); however, these studies were not consistently revealing the largest effect sizes. This may be due to the complexity of the presentations in these studies, as DBT has been developed for complex clinical presentations (Linehan, 2014). Furthermore, when exploring the control groups used, results showed smaller effect sizes for those studies which utilized active controls, such as communication skills, supportive counselling, or DBT (Bryant et al., 2013; Cloitre et al., 2010; Crespo & Arinero, 2010; Harned et al., 2014). Whereas those studies which used inactive controls, such as a waitlist (Hinton, et al., 2005), showed larger effect sizes as can be seen in figure 2. This may suggest that effect sizes of interventions are inflated depending on the control group used, and so points to caution when interpreting clinical effectiveness. As more robust categorizations of PTSD develop, such as CPTSD, the relationship between complexity and effect size could be clarified in further research.

Finally, further comment is required on the potential high complexity sample that was used in the study. Although the articles included in the potential high complexity sample outline that the trauma experienced by participants occurred in childhood, the samples were not identified as explicitly experiencing CPTSD symptoms and the PTSD symptoms could not be deemed more severe than those within the other studies. Therefore, the link to

potential high complexity within this subgroup rests on recent empirical, large scale findings which have shown that childhood trauma, particularly interpersonal trauma, leads to an increased risk for CPTSD symptoms (Hyland et al, 2017). However, some of the idiographic data within the potential high complexity samples also suggests more complex pathology. For example, two of the studies used a sample with a co-occurring diagnosis, including Borderline Personality Disorder (Bohus et al, 2013, Steil et al, 2011), which has noted overlap with the CPTSD classification (Ford & Courtois, 2014). This may tentatively suggest that some of the subgroup sample would meet criteria for CPTSD. Furthermore, comorbidities within the samples included depression, anxiety, suicide attempts and self-harm, substance misuse and eating disorders (Cloitre et al, 2002), again illustrating a more complex symptom profile. As noted, some of the criticism of PTSD intervention research has focused on the omission of these comorbidities in randomized control trials (Corrigan & Hull, 2015), whereas the current subgroup articles did not omit these participants. These anecdotal reflections of the samples may then lend evidence to the construct of a potential high complexity subgroup.

Limitations

The definitions of the terms Phase-Oriented and trauma complexity are wide ranging in the literature (Herman, 1992b, Ford et al., 2005, NICE, 2005, Ford & Courtois, 2013), which was reflected in the treatment variation and includes treatments which had distinct phases and others where phases overlapped (Lee et al. 2002). Although all treatments used skills targeting emotion regulation, studies varied in modality, additional stabilization skills, and length of interventions. Therefore, the study could not reliably account for the efficacy of each individual phase, contributing to heterogeneity. There were also difficulties in defining complexity and so this was not a true CPTSD sample. This in turn reduced the validity of the potential high complexity sample, for which the Phase-Oriented model was intended. Finally

this study only accounted for pre and post treatment time points due to studies using variable follow up periods. Furthermore, a consistent and active control group used to measure treatments against could not be utilized as a comparator of effect size, and so it is difficult to create explicit implications for clinical practice.

Implications and future research

The results suggest that it may be effective to first implement emotion regulation skills in the treatment of PTSD, which may support gains made in exposure and trauma memory reprocessing, although this requires clarity as research develops (van Vliet, Huntjens, van Dijk, & de Jongh, 2018). The review also lends support to clinical guidelines supporting the use of a Phase-Oriented model in cases of CPTSD (McFetridge et al., 2017). The dissimilarity in treatments suggests a need for standardization across content of Phase-Oriented treatments and comparison with appropriate controls (de Jongh et al., 2017); with long term follow up for patients, and to include patients with co-morbid difficulties in multiple populations. Most importantly, the review highlights the need to develop universal terminology for the Phase-Oriented approach, which can be investigated reliably.

Conclusions

Overall this systematic review of the literature somewhat confirmed the research suggesting therapeutic benefit in implementing emotion regulation skills before exposure and trauma memory reprocessing when working with higher complexity PTSD presentations. This area can be developed through more clearly by defining the Phase-Oriented approach and testing it against best practice, active treatment groups.

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