COMMISSION for VICTIMS and SURVIVORS

QUEEN'S UNIVERSITY BELFAST

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Conflict, Trauma and Mental Health

How psychological services in Northern Ireland address the needs of victims and survivors

Literature Reviews | Report 2 of 5

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A Series of Literature Reviews

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Contents

Report Two: Literature Reviews

Introduction

There are five literature reviews in this section

1. An overview of systematic reviews of psychological interventions for PTSD related to war, terrorism and civil conflict:
2. A systematic review of the association between war-related parental post-traumatic stress on family functioning:
3. A systematic review of psychological and pharmacological treatments for comorbid PTSD and substance use disorders related to war and/or civil conflict:
4. A systematic review of the role of cognitive factors in the maintenance of complicated grief following conflict-related bereavement:
5. A rapid review of treatments and psychological Interventions for treating war and civil conflict-related comorbid chronic pain and PTSD:

All reviews were undertaken by a sub-group of members of the research team and each review followed the same systematic approach to searching the literature, quality assessing selected papers for each review and reporting findings. Inclusion/exclusion criteria varied according to the purpose and aims of the review. Reviews 1, 3 and 5 only include treatment/intervention studies. The review of treatments for PTSD (review 1) did not include studies with refugees and asylum seekers because this group present with a wide range of psychosocial/ legalistic needs that often require multi-agency responses. However, such studies were not excluded from the complex grief review (review 4) because the purpose was to try to locate as many cognitive predictors as possible. Therefore, the wider the range of participants the more variables the review would be likely to locate.

Information Sources

The search strategy for each review was developed by extracting the relevant search terms, each term was then searched for in the database thesauri in OVID Medline to create a complete list of potentially relevant terms. Review authors reviewed each list, added any missing terms, and removed unnecessary terms. The search strategy included search strings for population (PTSD), setting (war/conflict, terrorism, political violence) and other appropriate terms such as intervention (psychological) and systematic reviews. Established data bases were searched including Medline, The Campbell Collaboration Library of Systematic Reviews, Cochrane Database of Systematic Reviews, Published International Literature on Traumatic Stress (PILOTS), PsycINFO, EMBASE, CINAHL Plus, and Web of Science. Reference lists of relevant reviews were also checked to identify further reviews.

Screening

The same rigorous screening process was used to identify individual studies from the selected systematic reviews.

Study Selection and Data Extraction

All identified studies were reviewed by the first author to determine eligibility. Studies were screened by title and abstract and irrelevant studies were excluded. The remaining studies were assessed via full text according to the inclusion and exclusion criteria by the first author and an independent reviewer. Relevant data was then extracted from each study.

Any discrepancies in data extraction were discussed and resolved by two review authors. A data extraction table was developed for each review to support the synthesis of included studies.

Risk of Bias

To reduce the potential confounding effect of publication bias, a grey literature search was conducted in the reviews.

Risk of bias in the included reviews was assessed using the Cochrane Collaboration's 'Risk of Bias' tool.

More specific details relating to each review are available in the appendices including flow charts outlining the selection process.

2.1 Review 1 - Psychological interventions for PTSD related to war, terrorism and civil conflict: An overview of systematic reviews

2.1.1 Introduction

High rates of PTSD have been found among people exposed to war, terrorism and civil conflict-related trauma (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995; Kitchiner Roberts, Wilcox & Bisson, 2012). A number of studies of PTSD in veteran samples indicated lifetime prevalence rates for PTSD between 30.9% and 26.9% in Vietnam Veterans (Kulka et al., 1990), 12.1 % in Gulf War Veterans (Kang, Natelson, Mahan, Lee & Murphy, 2010), and 13.8% in Afghanistan and Iraq Veterans (Tanielian & Jaycox, 2008).

In a population survey (Muldoon, Schmid, Downes, Kremer and Trew, 2005) 10% of participants reported PTSD symptoms, attributable to exposure to the political conflict in Northern Ireland (NI). Furthermore, children who had direct exposure to the Omagh bomb in NI had higher rates of PTSD compared to the general population (McDermott, Duffy, Percy, Fitzgerald & Cole, 2013). Those with chronic PTSD are also at higher risk of developing secondary problems, such as substance misuse (Kessler et al., 1995), suicidality (Panagioti, Gooding & Tarrier, 2010), chronic pain (Schnurr & Green, 2003), and many other medical problems (Ouimette et al., 2004).

As wars, civil unrest and political conflict persist, and recognition of the association between conflict and PTSD develops, it is imperative to identify the most effective treatments and interventions to facilitate clinical recovery, prepare mental health responses, and improve public health outcomes for both civilians and military personnel in affected communities (Mugisha, Muyinda, Wandiembe & Kinyanda, 2015).

Effective treatments for adults, children and young people experiencing PTSD are outlined in clinical guidelines such as the National Institute for Health and Care Excellence (NICE) in the U.K. (NICE, 2013; 2018). Trauma-focused psychological therapies, in particular TF-CBT, have a strong evidence base, and are therefore recommended treatments for PTSD. Trauma-focused CBT incorporates various therapies, but the three most prominent models are Prolonged Exposure (P.E.) (Foa, Rothbaum, Riggs & Murdock, 1991), Cognitive Processing Therapy (CPT) (Resick, Nishith, Weaver, Aston & Feuer, 2002) and Trauma focused Cognitive Therapy (TF-CT) (Ehlers & Clark, 2000).

Other trauma focused exposure-based therapies include Narrative Exposure Therapy (NET) (Schauer Neuner & Elbert, 2005) and Eye Movement Desensitisation & Reprocessing (EMDR) (Shapiro, 1996). Whilst both contain elements of CBT, these approaches include certain idiosyncratic treatment procedures. For example, NET does not identify a single traumatic event as a target in therapy but involves constructing a narrative that covers the patient's entire life. EMDR involves rhythmic bilateral eye stimulation regarded as a core therapeutic component by its originator (Shapiro, 1996) who considers the approach to be a distinct treatment (Shapiro, 2001).

The published research which informs clinical guidelines for PTSD treatments relates to non-conflict traumas, such as road traffic accidents, inter-personal assaults, fire or natural disasters and war combat studies have been published particularly relating to the Veterans Studies in the USA. The evidence base for effective treatments for PTSD linked to civil conflict or terrorist violence is less developed.

The justification for reviewing treatments for this specific population are:

1. There are different rates of PTSD associated with different types of trauma. Human inflicted traumas such as child abuse, physical attack, kidnapping or being held hostage produce high rates of PTSD compared to natural disasters or accidents (Kessler, 1995).

2. Many traumatic events linked to conflict and terrorism have specific features which present additional challenges in the treatment of PTSD and require further examination. For example, prolonged exposure to long periods of violence after a trauma, can make it difficult for individuals to make accurate judgements about levels of threat in the environment. Through the lens of their "trauma memories" traumatised individuals often unintentionally exaggerate the level of threat long after violence subsides and consequently remain socially disconnected.

Therefore, the key question addressed in this review is:

> What psychological treatments/intervention(s) are effective for treating PTSD in populations exposed to war, terrorism and civil conflict including; military, adult civilians and children and young people?

2.1.2 Methods

The findings from this review have been reported in line with the Preferred Reporting Items for Systematic Reviews (PRISMA). We conducted an overview of existing reviews, identifying existing relevant reviews (as distinct from conducting a new systematic review of trials). This is a new approach to the summary of evidence and is especially useful in subject areas where there are several related reviews (Becker & Oxman, 2011).

We extracted individual studies from published systematic reviews based on two criteria:

(1) The focus of the study was on PTSD related to conflict, war and terrorism.
(2) Key methodological considerations.

In terms of the first criteria, the majority of reviews did not make a distinction between conflict and non-conflict related PTSD. Therefore, it was necessary to screen all included studies in the eligible

reviews and only select studies that related to conflict, war and terrorism-related PTSD and not PTSD more broadly.

In terms of methodology, many review authors do not address the overlap issue of G studies being included in several reviews. This results in the volume and significance of evidence being overestimated or overstated (Polanin, Maynard & Dell, 2017). Our approach, focusing on individual randomised controlled trials (RCTs) and not merely restating the findings of existing reviews, aimed to address this issue of overlap.

2.1.3 Selection Criteria

The selection process was conducted in two stages:

1. Selection of eligible reviews
2. Selection of eligible Randomised Controlled Trials (RCTs) included in the reviews identified in stage one.

The selection criteria were guided by the topic focus of the review, which included PTSD, war, civil conflict and terrorism-related trauma and treatments/intervention(s).

For stage one, study type included systematic reviews and/or meta-analysis. Reviews were deemed to be systematic if a) the literature search included a replicable search strategy; b) quality assessment of individual studies was conducted. Reviews were included if a) the population of interest were people with a diagnosis of PTSD; b) reviews included studies on people exposed to war, terrorism and civil conflict-related trauma (defined as exposure to bombs/explosions, seeing dead bodies, murder of family member(s)), physical injury, combat, abductions, and torture; c) the review evaluated psychological interventions d) included PTSD symptoms as an outcome using standardised PTSD measures. We did not apply any limits based on publication status or language of publication of reviews. Systematic reviews that focused on prevalence of PTSD only, sexual violence only, non-conflict-related trauma only, or pharmacological treatments were excluded. Reviews that focused on refugee/asylum seekers only were not included. However, a recent systematic review and meta-analysis of PTSD for this specific sub-group has been published and highlights additional socio/politico needs for this population (see Thompson, Vidgen & Robert, 2018).

2.1.4 Results

Study Characteristics

In all, 40 RCTS fulfilled our criteria for inclusion, with data reported for 4,496 participants. The RCTs covered a time period between 1994 and 2015. There was significant heterogeneity in relation to gender, age, intervention type, trauma type, and location across the RCTs extracted from the included systematic reviews. Twenty-three studies were conducted in the United States, seven in Africa, six in Asia, one in Europe, one in the UK, one in Israel, and one in Australia, with sample sizes ranging from 20 to 495. Nine studies focused on children, ranging in age from 5-18 years, and 30 studies focused on adults, ranging in age from 18-58. Studies were grouped in relation to participant and intervention type.

In relation to children, three studies focused on TF-CBT, and six other studies focused specifically on School-Based interventions which included a range of therapeutic approaches. In relation to adults, 13 focused on TF-CBT, and seven other studies focused on Trauma-Focused Exposure Based therapies such as NET (TF-EB), one on Trauma-Focused Non-Exposure Based Therapies (TF-NEB-psychoeducation only), one on Non TF-CBT, and 13 on other therapies for adults. 25 studies focused on military personnel (21 on veterans, four on active-duty soldiers), and 15 focused on civilians (children and adults). Trauma type ranged from exposure to bombs/explosions, seeing dead bodies, murder of family member(s), physical injury, combat, abductions, and torture. Characteristics of the included studies are presented in Table 1 (See Appendix 1.2.5), along with a quality rating for strength of evidence.

Effectiveness of Psychological Therapies for PTSD

Of the 40 included studies, 31 RCTs evaluated the effectiveness of trauma-focused exposure based (TF-EB) psychological therapies including NET and EMDR, TF-CBT (including PE, CPT, TF-CT), one Non TF-CBT, and one TF-NEB therapy for war civil conflict and terrorist related PTSD in both children/young people and adults. When we refer to conflict-related trauma/PTSD throughout the results and discussion section, we are referring to *war, terrorism or civil conflict*-related trauma/PTSD). The quality of evidence was mostly high (13 RCTs) to moderate (10 RCTs), with eight RCTs rated as of low quality.

Adult Civilians

Two RCTs evaluated a TF-EB psychological therapy involving NET (Ertl, Schauer, Pfeiffer, Elbert, & Neuner, 2011) and a Testimony Intervention vs wait-list (Igreja, Kleijn, Schreuder, van Dijk & Verschuur, 2004). Three RCTs evaluated TF-CBT for adult civilians (Knaevelsrud, Brand, Lange, Ruwaard, & Wagne, 2015; Bryant et al., 2011; Duffy, Gillespie, & Clark, 2007).

All but one study (Igreja et al., 2004) demonstrated statistically significant improvements in conflict-related PTSD levels compared to supportive counselling and a wait-list control (Ertl et al., 2011), wait-list controls only (Knaevelsrud et al., 2015; Duffy et al., 2007), and TAU consisting of supportive counselling (Bryant et al., 2011). Between-group effect sizes were reported in four

studies and ranged from medium to large d=0.72 (Ertl et al., 2011); d=0.92 (Knaevelsrud et al., 2015); d=1.78 (Bryant et al., 2011) d=2.10 (Duffy et al., 2007). However, one study had a small sample size of 28 participants (Bryant et al., 2011), limiting the power to demonstrate a statistically significant effect (Button, Ioannidis, Mokrysz1, Nosek, Flint, Robinson, & Munafò, 2013). Igreja et al.'s (2004) study focused on African civilians exposed to civil war, using a Testimony Intervention (a modification of a trauma exposure technique inviting participants to share their trauma story) vs wait-list.

The Testimony intervention showed no significant difference in PTSD symptoms compared to wait-list controls. However, the authors (Igreja et al., 2004) did note this may be due to the intervention only comprising one session, along with intervention contamination with the control group due to uncontrolled interaction between all community participants.

One TF-NEB RCT, of moderate quality, involved a Psychoeducation workshop with African civilians, vs an active control workshop with no psychoeducation, and vs a wait-list group (Yeomans et al., 2010). Both active groups showed statistically significant improvements in PTSD severity post intervention compared to wait-list controls as measured by the short version (items 1-16) of the Harvard Trauma Questionnaire (HTQ) ($p < .01$, partial $\eta 2 = .11$). However, greater improvements were noted for those in the workshops without PTSD psychoeducation compared to workshops with the psychoeducation element as measured by both short (HTQ) and long (HTQ-b) versions of the Harvard Trauma Questionnaire (HTQ: trend of $p = .08$; HTQ-b: $p< .05$).

Military Personnel

Of the 25 studies focused on military personnel, 16 RCTs evaluated psychological therapies. Three studies evaluated TF-CBT, involving CPT for veterans (Monson et al., 2006; Forbes et al., 2012) and one for active-duty soldiers (Resick et al., 2015). In one of the Veterans studies (Monson et al., 2006), CPT showed statistically significant improvements in PTSD symptoms compared to wait-list controls with a large effect size (d=0.12; Confidence Interval (CI) 0.58, 1.67) although this was not maintained at one-month follow-up (d=0.67; CI 0.15, 1.19).

In two trials, CPT was compared to either TAU or a present-centered therapy (Forbes et al., 2012; Resick et al., 2015). Forbes et al.'s (2012) study found clinically significant improvements in PTSD symptoms for CPT vs TAU in Australian veterans (d=0.97). Although loss of diagnosis and clinical symptom improvement were not significant between groups at three-month follow-up, the CPT group maintained significant reductions in PTSD symptoms.

CPT also outperformed group present-centred therapy for active-duty soldiers. Although statistically significant improvements in PTSD symptoms were found for both groups ($P < 0.001$), the reduction was more significant in the CPT group (Cohen $d = 1.1$, $P < 0.012$), with a drop of 12 points from baseline in the CPT group (clinically significant improvement in PTSD severity (Cohen $d = 1.1$) compared to a drop of seven in the PCT group (Resick et al., 2015). However, the difference was not significant post-treatment and at 12-month follow-up for interviewer assessed PTSD.

Three small RCTs with veterans (sample size ranging from 30 - 52) compared TF-CBT, PE with TAU (Nacasch et al., 2011), minimal attention (Yehuda et al., 2014), and present-centered therapy (Rauch et al., 2015). In a small trial with Israeli veterans, (Nacasch et al., 2011) PE showed statistically significant improvements in PTSD symptoms compared to TAU, with a large effect size reported (d=1.80). Improvements were maintained at 12-months follow-up. However, when PE was compared with minimal-attention (MA), consisting of weekly 30-minute phone calls to monitor symptoms (Yehuda et al., 2014), significant improvements were found for both groups, (P<0.0005) but not between groups. Although reduction in pre-post Clinician-Administered PTSD Scale (CAPS) (Blake, Weathers, Nagy, Kaloupek, Gusman, Charney, & Keane, 1995) scores was slightly higher for those in the PE group (23-point mean reduction) compared to the MA group (14-point mean reduction). Similarly, a small RCT comparing PE with present-centred therapy found statistically significant improvements in PE completers, (Cohen d = 3.16, P = .008) but no significant differences between groups for the intention to treat sample (P=.03, d=.98) (Rauch et al., 2015).

Three RCTs evaluated the effectiveness of trauma-focused therapy involving EMDR for treating military-related PTSD. Two trials with small samples and brief treatments of 1-3 sessions demonstrated no statistically significant improvements in PTSD symptoms (Devilly et al., 1998; Jensen et al., 1994). However, in an RCT which used EMDR in adequate doses, a large proportion of completers (78%) were diagnosis free (Carlson et al., 1998). This study reported a large effect size (d=2.10) for EMDR compared to no treatment (wait-list) and for EMDR compared to biofeedback assisted relaxation (d = 1.07), with improvements maintained at 9-month follow-up (Carlson et al., 1998). However, this finding was not based on an intention to treat analysis.

The remaining RCTs evaluated a further three TF-EB psychological therapies, including exposure therapy only (Beidel, Frueh, Uhde, Wong & Mentrikoski, 2011), trauma-focused exposure-based group psychotherapy (Schnurr et al., 2003), and implosive (flooding) therapy (Keane, Fairbank, Caddell, & Zimering, 1989). Only one of these RCTs, rated as moderate quality, found clinically significant improvements in PTSD symptoms, with a small effect size (d=0.3), compared to a wait-list control (Keane et al., 1989). Another RCT, rated as high quality, found clinically significant improvements in PTSD symptoms for both the intervention (exposure therapy only) and control group (trauma management therapy) (Beidel et al., 2011). A trauma-focused exposure-based psychotherapy delivered in group form (Schnurr et al., 2003) was found to be no more effective than non-trauma-focused present-centred group therapy in ITT analysis (Schnurr et al., 2003).

Four RCTs evaluated technology-based treatment modalities for veterans, such as group CBT via telepsychiatry (Frueh et al., 2007) or virtual reality exposure therapy (VRE) (Ready, Gerardi, Backscheider, Mascaro & Rothbaum, 2010; McLay et al., 2011; Miyahira et al., 2012). A high quality RCT found significant group differences post-treatment, favouring in-person group CBT vs. telepsychiatry (SMD=11.53, 95% CI -2.35, 20.71) (Frueh et al., 2007). However, low rates of clinical change were observed in both groups. Two RCTs evaluating VRE found clinically significant improvements when compared to minimal attention or TAU (Miyahira et al., 2012; McLay et al., 2011). However, these two studies were of low quality and had small samples (10-20 participants).

No difference was found in the fourth small study (N=11) comparing VRE to person-centred therapy (Ready et al., 2010).

Children and young people

Three RCTs, of high quality, focused on children and young people. One compared TF-CBT to a group-based psychosocial intervention – Child-Friendly-Spaces (SFS) which focuses on building resilience and wellbeing through creative, expressive and discursive activities. ITT analysis showed statistically significant improvements in PTSD symptoms for both groups, but no difference between groups (O'Callaghan, McMullen, Shannon & Rafferty, 2015). Two RCTs found statistically significant improvements in PTSD symptoms, with medium to large effect sizes for those in the TF-CBT group compared to TAU (d=2.39 (Murray et al., 2015), and a wait-list control group (d=0.7) (McMullan, O'Callaghan, Shannon, Black, & Eakin, 2013) with improvements maintained at three-month follow-up.

Effectiveness of School-Based interventions for PTSD

Six of the included RCTs focused on school-based interventions for children and young people ranging in age from 8-18 years. Only one study was rated as high quality (Tol et al 2012), four were rated as of moderate quality due to lack of blinding outcome assessors (Tol et al., 2008; Jordans et al., 2010; Barron, Abdallah, & Smith, 2013; Tol et al., 2014) and one was rated as low quality due to a high risk of bias for more than one key domain (Gordon, Staples, Blyta, Bytyqi, & Wilson, 2008).

Only three studies of moderate and low quality evidence, reported significant improvements in PTSD for the intervention group compared to wait-list controls (Barron et al., 2013; Gordon et al., 2008; Tol et al., 2008). Two of these studies reported medium effect sizes (d=0.5 (Gordon et al., 2008); d=0.55 (Tol et al., 2008)), while one study reported a large effect size (d=0.8 (Barron et al., 2013)). However, Barron et al. (2013) did not report an intention to treat analysis. The first RCT evaluated a cognitive-behavioural program delivered by trained counsellors over five weeks using trauma-focused techniques. These included focusing on normalising trauma and strategies for intrusive memories, hyperarousal, and avoidance symptoms of PTSD (Barron et al., 2013).

The second RCT, by Gordon et al. (2008), evaluated a mind-body skills group program, delivered by schoolteachers trained in this approach. The program consisted of guided imagery, relaxation techniques, meditation, autogenic training, and biofeedback, for two hours per week over six weeks (12 sessions in total). The third evaluated a 15 session manualised intervention consisting of CBT and creative expressive elements with groups of 15 children, delivered over five weeks by non-specialised facilitators trained and supervised to deliver the intervention for one year prior to the

study. The intervention consisted of psychoeducation, strengthening coping skills, discussion of trauma through drawing, and creative expressive elements such as cooperative games, music, drama and dance (Tol et al., 2008).

The remaining three studies of moderate to high quality, evaluated the same intervention as Tol et al (2008) but found no significant improvements in PTSD for the intervention group compared to wait-list controls (Jordans et al., 2010; Tol et al., 2012; Tol et al., 2014).

Effectiveness of other therapies

Of the nine RCTs evaluating other therapies, eight focused on US veterans (Wahbeh, Oken & Goodrich, 2016; Possemato et al., 2015; Polusny et al 2015; Engel et al., 2014; Seppala et al., 2014; Church et al., 2013; Bormann, Thorp, Wetherell, Golshan & Lang, 2012; Harris et al., 2011), one focused on returning US active-duty personnel (Jain et al., 2012). The range of interventions consisted of Mindfulness-Based interventions, and also including interventions as diverse as Building Spiritual Strength. The quality of evidence was mostly high (5 RCTs), with the remaining four RCTs rated as low (n=2) to moderate (n=2) quality.

Military Personnel

RCTs evaluating mindfulness-based (Wahbeh et al., 2016; Possemato et al., 2015; Polusny et al., 2015) and meditation-based interventions (Bormann et al., 2012) for veterans had the highest strength of evidence among other therapies, along with one RCT evaluating Healing Touch alongside Guided Imagery tailored specifically for use in PTSD (Jain et al., 2012). All of these studies showed statistically significant improvements in PTSD post-treatment, with Mindfulness-Based Stress Therapy showing a clinically significant improvement in PTSD post-treatment and at two-month follow-up in US veterans compared to Present Centred Group Therapy (Polusny et al., 2015). Similarly, Bormann et al.'s (2012) RCT evaluating a Mantram Repetition Program (meditation-based intervention involving concentrative meditation, slowing down, training attention to help regulate emotions (Wadlinger & Isaacowitz, 2011)) and treatment as usual (TAU) (medication and case management only) found clinically significant improvements in PTSD for twice as many US veterans in the intervention group compared to the TAU only group. However, the effect size for these studies was small in intention to treat analysis.

Three RCTs of moderate to low quality evaluated other alternative therapies for veterans. One evaluated Building Spiritual Strength (Harris et al., 2011), and although they found a statistically significant improvement in PTSD compared to wait-list controls, this study was rated as low quality. Furthermore, although these authors reported a modest effect size, they did not provide the statistics to support this statement. Similarly, Church et al. (2013) found a statistically significant improvement in PTSD symptoms for veterans receiving Emotional Freedom Technique (EFT) compared to TAU/wait-list controls, but no effect size was reported, and this study was also rated

as low quality. One RCT of moderate quality found statistically significant improvements in PTSD symptoms, with a large effect size reported (d=1.7) for acupuncture combined with TAU (involving psychotherapies and medications commonly used for patients with PTSD) compared to TAU alone (Engel et al., 2014). Another study of moderate quality evaluated Sudarshan Kriya Yoga for US veterans (Seppala et al., 2014), and found a statistically significant reduction in PTSD symptoms, with a large effect size (d=1.16), compared to wait-list controls. However, the sample size for the study was small (n=21) and statistically significant improvements were not maintained at one-year follow-up.

2.1.5 Discussion

We extracted all relevant studies from the selected systematic reviews to ascertain the most effective psychological interventions for military and civilian populations with conflict-related PTSD. While there are a small number (six) of randomised controlled trials (RCTs), and the sample size is relatively small, it should be noted that RCTs are the most scientifically rigorous method of hypothesis testing available. In an RCT, sample size is taken into effect, and with randomisation and control mechanisms are in place. We note that for some treatment may commence 30-50 years after the incident. However, time has not been found to be a predictor of outcome.

Adult civilians

In this review, evidence for effective interventions for adult civilians with conflict related PTSD was limited to six RCTs (15% overall) focusing on this specific sub-group, a limitation recognized by other authors (Goral, Lahad, & Aharonson-Daniel, 2017). The evidence for civilians identified in this review concurs with UK guidelines for PTSD (NICE, 2013; 2018), which recommend TF-CBT, delivered on an individual basis.

Although based on only two RCTs of moderate quality, findings suggested that TF-CBT may be effective for treating PTSD in civilians in the context of *ongoing threat and* may also be effective for use in non-Western cultures (Bryant et al., 2011; Knaevelsrud et al., 2015); two areas which should be explored further through high quality research.

Military personnel

The evidence for veterans and active-duty soldiers was much more comprehensive in the literature, with 25 (63%) of all selected RCTs evaluating psychological interventions for this sub-population. The strongest evidence for effectiveness in this sub-group was found for TF-CBT including models such as CPT and PE-based therapies. Overall, RCTs evaluating CPT for military-related PTSD were of high quality, and when compared to no treatment (wait-list control) or treatment as usual (TAU) produced large effect sizes. These findings are in line with a previous high-quality review specifically for this sub-population (Kitchiner et al., 2012). However, when compared to a non-trauma focused active control (present-centered therapy), CPT was only marginally more effective in improving PTSD symptoms (Resick et al., 2015). Similarly, although trauma-focused psychological therapies delivered via telepsychiatry (Frueh et al., 2007) and virtual reality demonstrated clinically significant improvements in PTSD vs TAU (McClay et al., 2011) and an active minimal attention control group (Miyahira et al.,2011), improvements were not significant when compared to person-centred therapy (Ready et al., 2010). However, all of these studies had very small sample sizes, ranging from 10-20 participants, limiting the statistical power to capture between group differences. Furthermore, these studies did not include a combination of cognitive and behavioural components, excluding either cognitive (Ready et al., 2010) or behavioural strategies (Resick et al., 2015). Resick et al.'s (2015) study involved active-duty soldiers and other studies have focused on non-military populations in conflict locations (Bryant et al., 2011; Knaevelsrud et al., 2015) suggesting that TF-CBT can be effective for treating PTSD in both military and civilians in the context of ongoing threat.

Although EMDR has been recommended in USA Veterans guidelines as a first-line treatment for PTSD in military populations (US Department of Veterans Affairs and Department of Defense, 2010), our review found little evidence of support for EMDR for this specific sub-group. However, these findings were based on low quality RCTs, conducted 25-29 years ago (Devilly et al., 1998; Jensen et al., 1994). A recent update to the UK NICE guidelines reported that EMDR may be less effective for military populations (NICE, 2018), suggesting that further high-quality research is required to guide practice.

In relation to technology-based treatment approaches, our findings were in line with Kitchiner et al.'s (2012) conclusion that more high-quality research is required to determine their efficacy for military personnel. Recent UK guidelines have recommended computerised TF-CBT as an option for PTSD in adults, particularly for those who struggle with face-to-face therapies (NICE, 2018). Technology based approaches may offer an important way forward in relation to treatment uptake and completion, especially in light of the high drop-out rates noted as a major problem within the military population (Cully et al., 2008). Technology may help overcome some of the key barriers to receiving help for military personnel, such as the fear of stigma, shame and rejection (Kantor, Knefel & Lueger-Schuster, 2017).

RCTs evaluating mindfulness-based therapies (Possemato et al., 2015; Polusny et al., 2015) for veterans had the highest strength of evidence among alternative therapies, demonstrating clinically

significant improvements in PTSD symptoms compared to TAU and Present Centered Group Therapy. Similarly, UK NICE guidelines found some evidence for the effectiveness of mindfulness-based stress reduction, although we concur with the guidelines that there is currently not enough evidence to make any firm recommendations for this treatment approach (NICE, 2018), and more high quality RCTs are required.

Children and young people

Evidence for effective psychological interventions for children/young people was sparse, with only nine RCTs out of 40 included in the review attending to children/young people (22%). This may in part be due to the nascent stage of this research area, with the oldest RCT included in a recent meta-analysis of evidence-based treatments for conflict-related problems in children and young people published only twelve years previously (Morina, Malek, Nickerson, & Bryant, 2017).

In relation to how conflict-related interventions for children/young people should be implemented, findings were mixed. For example, half of the RCTs focused on school-based interventions showed promise in reducing PTSD symptoms, whereas half demonstrated no benefit. However, Tol et al.'s (2008) study, showing a significant improvement in PTSD symptoms, involved children and young people in a post-conflict setting whereas the other three studies, showing no effect, involved children and young people in settings with ongoing political violence. However, despite the paucity of studies evaluating PTSD interventions for children and young people exposed to conflict the NICE (2018) evidence update concludes that Trauma-focused CBT is effective for PTSD in children and young people and is more effective when it is provided individually than in a group.

Although our review found evidence that, in relation to children and young people, TF-CBT can be effective in the context of ongoing threat among adult civilians (Bryant et al., 2011), the security of the child may need to be addressed before therapy can be commenced. Similar to adults, it may be that treatment has to be adapted (more work on appraisals of on-going threat), or a higher dose of therapy is required for children/young people exposed to ongoing conflict. More research is required to answer these uncertainties.

As noted in the most recent NICE consultation document (2018), the evidence base for effective treatments for children/young people who have experienced large-scale shared trauma is less robust than for adults. However, TF-CBT is recommended for PTSD arising from other forms of trauma, so it is likely that this approach may be effective with conflict related traumas as well.

Strengths and Limitations

The majority of systematic reviews to date have focused on specific treatment approaches (i.e. TF-CBT) for specific populations (i.e. military personnel). A strength of this current review is the inclusion of a diverse array of interventions evaluated within the literature for both civilians and military populations. A limitation is that we were unable to under-take a systematic review of all the specific studies, however, the methodology employed in this review is a valid mechanism accepted as a reliable method by esteemed scientific publications.

Concluding Comments and Implications for Clinical Practice

Overall, the findings from this review concur with UK and USA professional guidelines recommending trauma-focused CBT models for civilians (adults and children) and military personnel with PTSD linked to conflict-related traumas (NICE, 2005; US Department of Veterans Affairs (VA) and Department of Defense, 2010).

There is extensive evidence that trauma-focused CBT interventions improve PTSD symptoms as well as other related outcomes, and that these improvements can be maintained up to a year later. Benefits were seen across a wide range of trauma types, including both single and multiple incident traumas. Trauma-focused CBT is more effective for adults and children when it is provided individually rather than a group setting. It is important that guidelines such as NICE and Cochrane are referred to as a means of guiding practice. CBT and EMDR are recommended based on randomised control trials and outcomes emerging in data during recent years.

This review highlights the importance of researching the needs of specific populations (i.e. children, adults, military), different delivery modes (in-person, via technology), and specific elements of therapeutic protocols (cognitive, behavioural and exposure elements) to optimise effectiveness of treatments for PTSD related to war, terrorism and civil conflict.

2.2 Review 2 - A systematic review of the association between war related parental post-traumatic stress on family functioning

2.2.1 Introduction

Parental civil conflict or war related Post-Traumatic Stress Disorder/Post-Traumatic Stress Symptoms (PTSD/PTSS) have been linked with disrupted family functioning and poor mental health outcomes in children (Davidson & Mellor, 2001; Kritikos, Comer, He, Current & Thomson, 2018). Typically, where families encounter stressful situations, especially where the stressor is prolonged in nature (e.g. parental PTSD), there is a risk that other members of the family unit may bear the negative effects of the stressor also. Characteristics of the disorder are evident in the way in which dysfunction presents in families where a parent has PTSD. The development of unhealthy familial

communication, for example, ranging from silences to intrusive attempts to share traumatic experiences which may be involved in the transgenerational transmission of trauma (Dekel & Goldblatt, 2008; McNally, 2014).

The emotional numbing component of PTSD symptomatology may also contribute to or act as a barrier to effective communication within the family (Brende & McCann 1984). McNally (2014) postulates that the person may be unable to effectively function in their role as a parent due to difficulties coping with their own trauma (McNally, 2014) and this may in turn serve to influence how the family as a unit function generally (Davidson et al., 2001). While the literature purports the considerable impact veteran PTSD can have on the psychological wellbeing of partners/spouses (Galovski & Lyons, 2004), adverse outcomes in children where a parent is suffering from PTSD include internalising and externalising problems, as well as altered hypothalamic-pituitary-adrenal axis functioning (Leen-Feldner et al., 2013).

In military families, children of deployed parents have additional visits to mental health services, and are more likely to sustain injuries and child mal-treatment post-deployment (Hisle-Gorman et al., 2015). The importance of examining and seeking to understand further how family functioning is affected by parental PTSD is highlighted given the reported negative and adverse outcomes that war/civil conflict related parental PTSD/PTSS can have on a child and the wider family.

The family unit is examined through the lens of family systems theory within the present review to help conceptualise and understand the working mechanisms of the family (Bertalanffy, 1968). In family systems theory, the family is viewed as a cohesive emotional unit (Kerr, 2000) and aspects of the theory as described by Epstein and colleagues, form the basis for the McMaster Model of Family Functioning (Epstein, Bishop & Levin, 1978). Within this model, the family grouping cannot be understood by examining the characteristics of individuals or specific interactions between pairs of members, but rather transactional patterns of the family system and the family's organization and structure are what serve to predict the behaviour of individuals within the family. Therefore, Epstein et al. (1978) postulate that many dimensions should be assessed as opposed to one single dimension. The McMaster Model considers family functioning within and across the following broad dimensions; problem solving, communication, roles, affective involvement, affective responsiveness and behaviour control (Epstein et al., 1978). Other aspects of family functioning as described within other models such as the Circumplex Model include family cohesion and adaptability (Olson, 2000).

The study of family functioning in light of parental mental ill health is important in order to increase our understanding of the potential mechanisms through which the family as a whole are affected. Reviews in this area tend to set restrictions regarding samples for inclusion such as limiting the population from the outset to military families. The present review thus sought to examine both war-related parental PTSD and PTSD in parents stemming from civil conflict around the world (e.g. civil conflict in Northern Ireland). In addition, and in contrast to previous studies, this review sought to examine specific aspects of family functioning (as opposed to just total score) through the inclusion of studies that utilised broad based measures of family functioning. In doing so, the

present review aimed to provide a more comprehensive examination and understanding of how families are impacted by parental war or civil conflict related PTSD. Furthermore, highlighting key difficulties regarding how PTSD relates to family functioning may assist in the development and implementation of family interventions. Indeed, research has highlighted the paucity of theoretically informed and well-validated interventions for use with military families (Gewirtz, 2018). A review of this nature may provide important information for the development of such interventions and potential insights regarding treatment aims for PTSD in this population.

2.2.2 Method

Eligibility Criteria

The inclusion criteria comprised the following: a) assessed the association between parental war or civil conflict-related post-traumatic stress symptoms and family functioning (as assessed by a validated and reliable measure of broad dimensions of family functioning or instruments designed to assess specific components of family functioning), b) were published after 1980, c) were published in English. Exclusion criteria included the following; a) systematic reviews, b) where the full sample were not parents d) qualitative studies, e) studies with refugee samples due to additional variables/factors that could potentially impact on family functioning (e.g. displacement).

Studies were included in the present review if they utilised family functioning measures that assessed broad dimensions of family functioning, or utilized instruments designed to assess specific components of family functioning. Examples of broad measures of family functioning include; The Family Adaptability and Cohesion Scale (FACES; Olson, Portner & Lavee, 1985) and the McMaster Family Assessment Device (FAD; Epstein et al., 1978). Given the nature of the samples under study (typically studies in this area are relating to military parents), a family functioning subscale from a post-deployment measure designed specifically for military families (the Deployment Risk and Resilience Inventory-2; (DRRI) Vogt et al., 2013) was also included. Within this, studies were included if they used these measures in their entirety (i.e. included all subscales) or provided a global or general score of family functioning (e.g. Total Score of the FAD). Examples of sub-components within broad measures of family functioning include roles, problem solving, cohesion, adaptability and communication.

2.2.3 Results

A total of 1338 studies were identified across all the databases. From this, 144 duplicates were removed, leaving 1194 studies (Appendix 1.2.3). These studies were then screened by title and abstract following which 1156 studies were removed, leaving a remaining 38 studies. The inter-rater reliability for the assessment of the eligibility of the 38 studies was .93 (97% agreement as

measured by Cohen's Kappa). The raters disagreed on the eligibility of one study, which was discussed and resolved, and the final sample included 9 studies. The reference lists of the final 9 studies were scanned to see if other relevant studies could be included.

2.2.4 Study Characteristics

In Table 1 (Appendix 1.2.5) the details of the characteristics of selected studies are presented. All included studies (*n*=9) were of military family populations. All studies were in the English language and the dates range from 1990 to 2015. The FAD was used by four studies (Al-Turkait et al., 2008; Davidson et al., 2000; Marsanic et al., 2014; Vukovic et al., 2015) and the FACES was used by three studies (Harkness, 1990; Hendrix et al., 1993; Jordan et al., 1992). The remaining studies used the Family Environment Scale (FES) (Westerink et al., 1999) and the DRRI-2 (Vaughn-Coaxum et al., 2015). Two studies utilized a self-report measure of family functioning from the veteran with PTSD only (Hendrix et al., 2003; Vaughn-Coaxum et al., 2015), two studies reported from the perspective of offspring only (Marsanic et al., 2013; Vukovic et al., 2015) and two studies utilised reports from veteran, offspring and spouse/partner (Al-Turkait et al., 2008; Harkness, 1990). All other studies utilised a combination of veteran, spouse/partner and offspring; veteran and offspring (Davidson et al., 2001), veteran and spouse (Jordan et al., 1992) and offspring and spouse (Westerink et al., 1999). The sample sizes pertaining to informants across the included studies were 975 veteran parents, 2130 offspring and 573 spouses/partners. The weighted mean age of the veteran informants across studies that reported mean ages was 39 years and the weighted mean age for offspring participants was 14 years. In relation to war-exposed parents, three studies included only male participants (Al-Turkait et al., 2008; Harkness, 1990 & Jordan et al., 1992) and one study included males and females (Hendrix et al., 1993). Gender was not specified in the study by Davidson et al. (2001). Gender was both male and female and on average evenly split across offspring samples (Al-Turkait et al., 2008; Harkness, 1990, Marsanic et al., 2013 & Vukovic et al., 2015) with the exception of one study (Westerink et al., 1999; F; *n*=16, M; *n*=6). The majority of studies were conducted in the U.S.A. (*n*=4) and the rest were conducted in Croatia (*n*=2), Australia (*n*=2) and Kuwait (*n*=1). All 9 studies were cross-sectional by design.

2.2.5 Overall Association

Table 2 and Table 3 (Appendices 1.2.6 and 1.2.7) (broken down by specific measures used) present the associations between parental PTSD and family functioning. While there was heterogeneity between studies in relation to participants, measures used and subscales reported on, overall, all nine studies reported that parental war-related PTSD is associated with impaired family functioning. Of the studies that reported effect sizes (*n*=6), small to large effect size differences

between groups were found in the association between parental PTSD and family functioning (AL-Turkait et al., 2008; Davidson et al., 2000; Harkness, 1990; Hendrix et al., 1993; Marsanic et al., 2014; Vukovic et al., 2015). This suggests that parental PTSD resulting from war exposure has a negative effect on overall family functioning.

Closer observation of the specific subscales of family functioning suggests that parental PTSD had a differential effect on specific aspects of family functioning. In studies that reported effect sizes of specific subscales (e.g. communication) using the FAD measure (*n*=3; Al-Turkait et al., 2008; Davidson et al., 2000; Marsanic et al., 2014), domains of family functioning that appear to be most consistently associated with parental PTSD are affective responsiveness, problem-solving and communication (Table 3, Appendix 1.2.7). The domains found to be least associated with parental PTSD (not significant and nil to small effect sizes) as measured in these studies, were roles and behaviour control. Of studies that reported FAD Total Score (*n*=2; Marsanic et al., 2014; Vukovic et al., 2015), medium to large effect sizes were observed in the association between parental PTSD and family functioning.

2.2.6 Association between Parental PTSD and Specific Dimensions of Family Functioning

As can be seen from Table 2 and Table 3 (Appendices 1.2.6 and 1.2.7), there were six studies that reported on subscales of family functioning (Davidson et al., 2001; Al-Turkait et al., 2008; Marsanic et al., 2013; Hendrix et al., 1993; Harkness, 1990 & Westerink et al., 1999). Utilizing the FAD measure, Davidson et al. (2001) found that affective involvement, affective responsiveness, communication and problem solving were significantly worse in the PTSD group compared to veterans and controls as reported by parents (veterans). These subscales all had small to medium effect sizes, but the largest differences were in affective responsiveness and problem-solving. According to offspring ratings, only problem-solving and affective responsiveness were found to be significantly worse in the PTSD group than in the veteran without PTSD and civilian groups, with small effect sizes. There was no statistically significant difference in the ratings of behaviour control, affective involvement, roles and communication between the three offspring groups.

AL-Turkait et al. (2008) also utilized the FAD measure and found that parental PTSD was associated with significantly worse communication and problem-solving when controlling for parental age, child age and child's education. However, this difference was only found where both parents had PTSD, or where the mother had PTSD. The only domain found to be significantly impacted by the father's PTSD symptom severity was affective responsiveness and the effect was small in magnitude. Marsanic et al. (2013), again using the FAD measure, reported significantly worse family functioning in the areas of affective involvement, affective responsiveness, communication and problem solving in the PTSD group compared to controls, with large effect sizes. The largest difference was in affective responsiveness.

Two studies (Harkness, 1990 & Hendrix et al., 1993) reported on specific subscales of family functioning using the FACES measure (adaptability and cohesion). Harkness (1990) found that

severe PTSD (when compared to participants with mild PTSD), was associated with worse adaptability and cohesion but this difference was only significant for the cohesion subscale as reported by parents. No significant differences were found between the two offspring groups (parents with mild versus severe PTSD) on cohesion and adaptability, but both groups showed significant differences when compared to general population norms on the adaptability subscale only. This effect was small in magnitude. Hendrix et al. (1993) found that there were significant correlations with medium effect sizes between PTSD symptom clusters (intrusion and avoidance) and both cohesion and adaptability. However, neither cohesion nor adaptability correlated with global perception of distress scores as measured by the PPTSDS (Purdue Post-Traumatic Stress Disorder Scale). Finally, Westerink et al. (1999) found significantly worse cohesion, more conflict and less expressiveness in the PTSD group than controls when reported by spouse/partner. While offspring of parents with PTSD reported worse cohesion in their families, only conflict was found to be significantly worse than for controls.

2.2.7 Observations regarding Differences between Groups

As some studies measured degrees/severity levels of PTSD (*n*=2; Harkness 1990; Vukovic et al., 2015), or included control groups who had been exposed to war but did not develop PTSD, it was possible to explore whether more severe PTSD was associated with a higher impairment on family functioning. For example, Vukovic et al. (2015) found that there was significantly worse family functioning among offspring who had a veteran father with full PTSD compared to those with a veteran father with partial PTSD, and also significantly worse family functioning in the partial PTSD group compared to the no PTSD group. Further, Harkness (1990) found worse family functioning (parental ratings) in the severe PTSD group versus the mild PTSD group. Finally, Vaughn-Coaxum et al. (2015) found that higher PTSD severity was associated with worse family functioning scores in partnered but not single parents.

In studies that included a control group of veterans that had been exposed to war but had not developed PTSD, differences between groups were observed with regard to the association between parental PTSD and family functioning (*n*=3; Davidson et al., 2001; Jordan et al., 2001; Marsanic et al., 2015). Davidson et al., (2001) were the only study to include a comparison group of civilians as well as a group of veterans without PTSD. They found that those with PTSD had worse family functioning than veterans without PTSD, but the veterans without PTSD had worse family functioning than the civilian group. This suggests that although the veterans did not reach diagnostic criteria for PTSD, they might have had some symptoms due to the war exposure, which impacted family functioning. This study also observed the same pattern between parental PTSD and family functioning as rated by the offspring. The offspring of those with PTSD reported worse family functioning on problem solving and affective responsiveness, followed by the veteran offspring, and then the civilian offspring.

2.2.8 Discussion

Synthesis of Findings

This systematic review sought to examine the association between war or civil conflict related parental PTSD with impaired family functioning. While the original intention of the review was to include both war exposed and civil-conflict exposed parents with PTSD, the only studies (*n*=9) that met selection criteria were military family populations. This highlights the paucity of research regarding the study of family functioning in families where a parent was exposed to civil-conflict related trauma.

The included studies were diverse in terms of samples and outcome measures utilised which precluded the use of meta-analysis. A narrative synthesis was therefore employed as the method of analysis. While aggregate estimates of the pooled effect sizes could not be analysed, the results suggest that overall, parental PTSD/PTSS is associated with impaired family functioning. Drawing from the studies that reported on specific aspects of family functioning, as opposed to just total score, the present synthesis may make tentative suggestions regarding the components of family functioning that are perhaps most commonly affected by parental PTSD. In doing so, this review can highlight key areas for intervention both for wider family interventions, parenting interventions and in terms of treatment aims for PTSD in this population.

Differences between Groups

Differences regarding reported levels of healthy or impaired family functioning tended to vary depending on the severity of parental PTSD (e.g. Harkness, 1990; Vukovic et al., 2015). For example, Vukovic et al. (2015) observed significantly worse family functioning as reported by offspring of the veteran group with a diagnosis of PTSD compared to the veteran group with a partial diagnosis of PTSD. This is unsurprising given that people with sub threshold or partial PTSD are typically not as affected across multiple domains than those with full PTSD (Zlotnick, Franklin & Zimmerman, 2002). Further, a lower proportion of people with sub threshold PTSD than full PTSD will experience symptoms for more than 2 years (Breslau, et al., 2004). As the present review suggests that severity levels of PTSD affect family functioning to different degrees, it is important for clinicians to be aware that different degrees of treatment intensity and/or tailored family interventions may be required relative to the severity of the illness.

Differences were also observed between veteran groups with PTSD and veteran groups without PTSD (*n*=3; Davidson et al., 2001; Jordan et al., 1992; Marsanic et al., 2014). For example, Davidson et al. (2001) observed worse family functioning overall in the veterans with PTSD group than the veterans without PTSD group. This is an interesting observation given there are several potential risk factors relating to the psychosocial functioning of military families. These include parental separation and absence, or family relocation

(Palmer, 2008), while the pre- and post-deployment periods are reportedly high stress periods for families (Saltzman, Lester, Beardslee, Layne, Woodward & Nash, 2011). Given the entire sample used in this study were veterans, this finding suggests that parental PTSD may affect family functioning over and above other risk factors relating to military families.

Reporting on Specific Dimensions of Family Functioning

While the included studies found parental PTSD to be associated with most dimensions of family functioning, studies that reported on effect sizes (*n*=6) can provide tentative insights into the greatest difficulties experienced by families. For instance, in relation to studies that utilized the FAD, parental PTSD was consistently found to be associated with impaired affective or emotional responsiveness across the studies. Furthermore, in studies that utilized the FACES, parental PTSD was consistently found to be associated with worse levels of cohesion (e.g. Harkness, 1990; Hendrix et al., 1993). Indeed, the cohesion subscale of the FACES, has been likened to the affective responsiveness subscale of the FAD as they measure similar constructs (Olson & Gorall, 2003).

In hypothesising why these dimensions might be particularly linked to parental PTSD from the perspective of the parent with mental ill health, spouse/partner, or child, it makes sense to consider specific symptoms of PTSD that might be at play in this regard. For instance, negative alterations or changes relating to thinking and mood involve feeling detached from others, increased difficulty maintaining close relationships and feeling emotionally numb. Changes in emotional reactions also include increased irritability and anger outbursts (NICE, 2018). In addition, PTSD is associated with having a diminished awareness of one's emotions and thoughts (Tull, Barrett, McMillan & Roemer, 2007) and lack of emotional acceptance (McLean & Foa, 2017). What might be particularly difficult for families is the tendency to withdraw interpersonally so as to avoid situations or people that may serve to trigger memories of the trauma. In turn, this might lead to a reduction in engagement in family events (Galovski et al., 2004). This fits with findings by Hendrix et al. (1993) in the present review where avoidance symptoms were found to be moderately associated with worse family cohesion. Indeed, findings in the literature with a focus on intimate relationships, have noted that the avoidance symptom (Evans, McHugh, Hopwood & Watt, 2003; Evans, Cowlishaw, Forbes, Parslow & Lewis, 2010; Sayers, Farrow, Ross & Oslin, 2009) and the emotional numbing cluster of PTSD (Possemato, Pratt, Barrie, Ouimette, 2015) appear to be consistently associated with worse family functioning. These specific PTSD symptoms could also explain other difficulties highlighted in the results across studies in this review including a family's ability to communicate and problem solve effectively (e.g. Davidson et al., 2001). More studies that report on specific symptom clusters are needed in studies examining parental war related PTSD within the broader family unit to explore and further understand the specific components of PTSD that disrupt family functioning.

Variations in Self-Report between Participant Groups

Variations regarding participant report of family functioning were observed across the included studies whereby parents (veteran and spouse/partner) were more likely to report worse family functioning than offspring (*n*=3). This was true for Davidson et al. (2001) who found that just two subscales of the FAD measure were significant with medium effect sizes in the offspring group as opposed to four subscales in the veteran group (large effect sizes). Differences in reports between the veteran with PTSD and their spouses were also observed. For example, Jordan et al. (1992) found that veterans with PTSD reported significantly less healthy family functioning than controls but there were no significant differences between groups as reported by spouses/partners. Finally, with regard to differences between spouse/partner and offspring, Westerink et al. (1999) found that conflict, cohesion and expressiveness were significantly worse than healthy controls as reported by spouse/partner. However, only conflict was found to differ significantly in the offspring group. Overall, it appears that parents tend to perceive their families as functioning in less healthy ways than offspring while spouse/partners tend to perceive healthier family functioning than the parent with PTSD. This may fit with symptoms of PTSD experienced by the individual given there typically exists an amplification of negative cognitions concerning the self and the world which can persist in the long term (Dekel, Peleg & Solomon, 2013).

Given the variations amongst family members regarding perceived family functioning difficulties, the importance of ensuring multiple perspectives are sought in research is highlighted for the purposes of comprehensive assessment. In addition, acknowledging differences regarding perceptions across different family members is a key factor to consider in the development and implementation of interventions for families where a parent has PTSD.

Limitations of Identified Studies

There are several limitations of the included studies that should be highlighted. Firstly, all included studies were cross-sectional in design which limits the overall interpretation of results given longitudinally designed studies are required to decipher potential casual relationships. Secondly, most of the identified studies did not measure and consider the impact of potential co-morbidities alongside a PTSD diagnosis. Given comorbid psychopathologies are reportedly high in a veteran sample with PTSD (Iverson & Greenberg, 2009; Murphy & Turgoose, 2019), it would be important for this to be examined in future studies in an attempt to decipher how much family functioning is affected by PTSD as opposed to other risk factors.

Further, potentially important factors that might impact on the association between parental PTSD and family functioning, over and above the war-exposed parent's diagnosis of PTSD, is the unexposed parent's emotional and mental well-being. Only one study in the present review examined the impact of the unexposed parent's PTSD symptoms on family functioning (Al-Turkait et al., 2008). Considering the impact that veteran's PTSD can have on the psychological functioning of their spouses/partners (Galovski et al., 2004) and the reported impact that maternal well-being can have on child and family outcomes (Yehuda, Teicher, Seckl, Grossan, Morris & Bierer, 2007), it is important that future studies consider the impact of wider factors such as these in the study of family functioning.

Moreover, most of the included studies did not contain analyses to control for potentially confounding or mediating factors. While one study (Al-Turkait et al., 2008) controlled for age and education of offspring, studies did not consider the influence of other factors that could potentially affect family functioning in military populations (e.g. whether or not the veteran or family had received treatment for PTSD symptoms). More comprehensive measurement and analyses of potential confounding factors would help to isolate and decipher the true effect parental PTSD symptoms have on family functioning.

Limitations and Strengths of Review

Although the present review provides an important synthesis of information on the association between parental PTSD symptoms and family functioning, limitations should be noted. Firstly, all identified studies were samples of military families which limits our ability to generalise the results beyond this population. Next, the review was limited to the inclusion of studies that utilized broad based measures of family functioning. Potential design and measurement issues exist with these instruments and therefore caution should be taken in the interpretation of the findings. While these measures have established and documented reliability and validity, the DRRI-2 family functioning subscale was the only measure that was designed for specific use with military families. Furthermore, only two of the identified studies reported on reliability of the family functioning measure (e.g. coefficient alpha) in their respective samples (Hendrix et al., 1993 & Vaughn-Coaxum et al., 2015). The importance of ensuring future studies test the reliability of scales on their own data set is highlighted given the lack of information pertaining to the use of this measure in such populations. The FAD was the most consistently used family functioning measure across the identified studies (*n*=4), and although the scale has high levels of internal consistency across various types of families (Epstein, Baldwin & Bishop, 1980) some contradictory reports exist (Kabacoff, Miller, Bishop, Epstein & Keitner, 1990; Ridenour, Daley & Reich, 1999). Given the potentially high correlations that exist between subscales, caution should be taken in the interpretation of findings from this measure. The FACES measure too has received some criticism in the literature, particularly regarding the theoretical model that the measure was devised from (Circumplex model; Olson, Sprenkle &

Russell, 1979). However, Place and colleagues (Place, Hulsmeier, Brownrigg & Soulsby, 2005) note that the FACES is a useful way of describing family functioning provided the dimensions are viewed as relatively independent elements. Overall, while advantages of these broad-based measures include the fact that they cover many dimensions of family functioning and allow for group comparison, families are complex systems, and it is therefore challenging to identify simple evaluation methods.

Regarding strengths, the current systematic review is the first to the authors' knowledge to synthesise information regarding the association between parental PTSD symptoms and family functioning studies that utilised broad based measures of family functioning. In addition, this review considered family functioning from the perspective of the whole family allowing for a more comprehensive review of areas that are potentially most affected by parental war-related PTSD.

Conclusions

This systematic review sought to examine the association between war or civil conflict-related parental PTSD and family functioning from the perspective of the wider family unit. Through the inclusion of studies that utilised broad-based measures of family functioning, and considering potential limitations of these measures, the findings provide insights into the salient challenges that may be experienced by such populations. The findings provide useful information for clinicians in practice, especially regarding the development and implementation of interventions for families where a parent is suffering from war-related PTSD. Finally, the review highlights the paucity of research regarding the association between civil conflict-related parental PTSD and family functioning. This demonstrates the need for future research in this area to broaden our understanding and identify any differences that might exist between these groups in how families are affected by parental PTSD, culturally or otherwise.

Although the review is based on studies with families of veterans, the findings may well be applicable to populations exposed to prolonged traumas arising from civil conflict, but further research is required with these groups.

Concluding comments and Implications for Clinical Practice

There are many published studies demonstrating a relationship between different forms of parental mental illness (Depression, PND, Schizophrenia, Bi-polar Disorder) and negative impacts on parenting and family functioning. However, the focus of this review is specifically on PTSD and indicates that parental war-related PTSD may affect a family's ability to function effectively across various domains.

Negative effects of Parental PTSD can include:

- **negative alterations or changes relating to thinking and mood involve feeling detached from others, increased difficulty maintaining close relationships and feeling emotionally numb**
- **increased irritability, anger outbursts, a diminished awareness of one's emotions and thoughts and lack of emotional acceptance**
- **a tendency to withdraw interpersonally to avoid situations or people that may serve to trigger memories of the trauma, leading to a reduction in engagement with family events**

significantly worse communication and problem-solving where either the mother or both parents have PTSD. In light of these observations, it is important that the individual with PTSD be assessed alongside a consideration of the family unit's needs to provide appropriate interventions for parents with war related PTSD and, where appropriate, for families.

1) **Family functioning can be more, or less impacted depending on the severity of PTSD. Clinicians may thus consider providing levels of intervention intensity for families based on the severity of parental PTSD (tiered approach).**
2) **Whole family approaches to treatment may be inappropriate and different approaches to supporting families may thus be required in addressing family problems. For instance, offspring may benefit from group work with other children with a parent with war-related PTSD in order to provide a space to share and process similar, shared experiences. This approach could be an adjunct to a preventative approach such as psychoeducation regarding parental PTSD.**
3) **Consider and adjust for the potential differences between single and partnered families (e.g. single parents may have access to more external supports). As this finding is reported by just one study included in the present review, this point is made tentatively but highlights the importance of prior assessment of need so that specific interventions can be provided depending on levels of support required.**

2.3 Review 3 - Psychological and pharmacological treatments for comorbid PTSD and substance use disorders related to war and/or civil conflict: systematic review

2.3.1 Introduction

Key findings from several random controlled trials indicates that trauma-focused psychotherapies delivered concomitantly with evidence-based substance use disorder treatments appear to be effective in reducing PTSD symptoms and substance use. However, from an initial scoping exercise it appeared that the number of quality RCTs are relatively small, and there is considerable heterogeneity in the treatments reviewed. A Cochrane review by Roberts et al. (2016) suggested that while combined trauma/SUD interventions can help reduce PTSD symptom severity for individuals with PTSD and co-morbid SUD, the effect sizes were small and treatment groups had higher levels of attrition, suggesting potential problems with treatment tolerance/compliance. Therefore, further evidence was required to identify the most helpful evidence-based interventions and support services for co morbid substance use disorders and PTSD.

Aim of the review:

To examine the efficacy of psychosocial and pharmacological interventions for individuals who have concomitant PTSD and Substance Use Disorders, which are linked to war or conflict related trauma.

2.3.2 Method

Search Strategy

The search strategy was developed by extracting the search terms from previous relevant reviews. Review authors reviewed each list, added any missing terms, and removed unnecessary terms. The search strategy included search strings for population (PTSD and SUD), setting (war/conflict, terrorism, political violence) and intervention (psychological). We included searches within OVID Medline, Web of Science, Social Care Online, Published

International Literature on Traumatic Stress (PILOTS), EMBASE, Cochrane, Campbell, and PsycINFO databases for peer-reviewed literature published from to February 2020. Two reviewers for inclusion independently assessed all potentially relevant articles.

Population

We have defined the population of interest as adults with a diagnosis of comorbid PTSD and substance use disorders (SUDs) linked to war and/or civil conflict related trauma. The intervention was defined as any psychological or pharmacological intervention that targeted comorbid symptoms of PTSD and substance use disorders. The comparison where relevant was defined as any type of control group, including active treatment, as well as any inactive or "no treatment," placebo, or waitlist alternatives. The outcome has been defined as changes in comorbid PTSD and substance use disorder symptoms and/or diagnostic status. (Appendix 1.3.3).

Eligibility Criteria

Selection criteria is presented in Table 1 below.

Table 1. Eligibility Criteria

Inclusion Criteria
Peer reviewed Journals
English Language
RCT and quasi experimental designs
Substance / Alcohol use /misuse or disorder
Comorbidities and PTSD
Interventions Psychosocial or Pharmacological
War and/or civil conflict related trauma
Exclusion
Participants under 18 years
Policy or framework document
Full-text was not available
Grey literature (e.g. unpublished reviews)

Animal studies Included children or adolescents (less than 18 years of age).

Screening process

The screening process is explained appendices, the data extraction process is explained in appendix 1.3.5 and the review process and results are outlined in the PRISMA flow chart (Appendix 1.3.6). Reviews with clearly identifiable populations not specific to this review or not addressing psychological or pharmacological treatments for PTSD and SUD (e.g. prevalence studies), were rejected at title screening by one review author. Two authors discussed and reviewed abstracts of all retrieved articles against the inclusion criteria. The two authors independently reviewed any potentially relevant articles retrieved in full text. Interrater agreement was 95% and a record was kept of all excluded reviews along with the reason for exclusion. 1825 publications were identified from a number of database and 17 studies met the eligibility criteria.

2.3.3 Findings

Study measures

All studies included participants who presented with SUDs and conflict-related PTSD. Studies utilised a wide range of standardised and non-standardised measures. The most common alcohol outcome assessment included the Substance Abuse Calendar/Timeline Follow-Back Interview (TFLB; Sobell & Sobell, 1992), the Obsessive-Compulsive Drinking scale (OCDS; Anton et al., 1995) and The Addiction Severity Index (ASI). The most common PTSD outcome assessment was The Clinician-Administered PTSD Scale (CAPS), a clinical interview considered a gold standard for PTSD assessment (Blake et al., 1995) and the PTSD Symptom Scale Interview (PSS-I).

Settings and population

All studies[1] were outpatient based and involved veterans as participants. Outpatient settings included health service research departments, veteran clinics, or substance use clinics based in hospitals, psychiatric and community mental health settings. All studies used veterans as participants.

Interventions

Twelve studies utilised psychosocial interventions. Five studies used forms of Trauma-focused CBT, of which three studies focused on exposure-based interventions (Back et al., 2019; Norman et al., 2019; Köbach et al., 2017). One study incorporated Integrated Cognitive Behavioural Therapy (ICBT; Capone et al., 2014) and one focused on Cognitive Processing Therapy (CPT; Kaysen et al., 2014). Two studies used Behavioural Couples Therapy (Rotunda et al., 2008; Schumm et al., 2015). Three studies (Najavits at al., 2018; Boden et al., 2011; Norman et al., (2019) incorporate the 'Seeking Safety' model (SS) which uses present-centred integrated coping skills (I-CS), teaching coping skills for both SUDs and PTSD. Present-Centred Therapy (PCT) is a time-limited treatment for PTSD that focuses on increasing adaptive responses to current life stressors and difficulties that are directly or indirectly related to trauma or PTSD symptoms. Najavits at al., (2018) compared the SS model to a new past-focused model 'Creating Change' (CC) which claims to be more integrated than other past-focused treatments in terms of past-focused PTSD/SUD content: guiding clients to process painful SUD memories as well as trauma memories and exploring the life trajectory of both disorders in relation to each other in detail. Two studies reported using web-based interventions for veteran subpopulations with PTSD and substance use disorders (Acosta et al., 2017; Brief et al., 2013). One study (Luciano et al., 2019) investigated the effectiveness of a brief intervention programme for individuals diagnosed with PTSD and concomitant diagnosis of Alcohol Use Disorder (AUD). Four studies utilised a number of pharmacological interventions for PTSD and problematic substance use (Petrakis et al., 2012; Petrakis et al., 2015; Petrakis et al., 2006; Batki et al., 2014). One study

[1] Petrakis et al., 2012; Petrakis et al., 2015; Petrakis et al., 2006; Batki et al., 2014; Capone et al., 2014; Schumm et al., 2015; Boden et al., 2011; Brief et al., 2013; Acosta et al., 2017; Najavits at al., 2005; Norman et al., 2019; Kaysen et al., 2014; Rotunda et al., 2008; 2016; Köbach et al., 2017; Back et al., 2019; Luciano et al., 2019; Foa, et al., 2013.

conducted an integrated treatment intervention using pharmacological and psychosocial components (Foa, et al., 2013).

Psychosocial Interventions

Exposure based interventions

Three studies focused on exposure-based interventions (Back et al. 2019; Norman et al. 2019; Köbach et al., 2017). Köbach et al. (2017) focused on Narrative Exposure Therapy adapted for Forensic Offender Rehabilitation (FORNET) compared to treatment as usual (TAU). The participants assigned to TAU remained in a demobilisation camp for 2–3 weeks or completed TAU in the local reintegration centre. In the demobilisation camp, they received medical care and had access to psycho-social support. Köbach et al. (2017) reported that six months post-intervention, FORNET significantly reduced PTSD symptoms ($p \leq 0.001$). Moreover, beneficial effects were indicated for depression severity and drug dependence, as well as for reintegration indices (assessment to gauge the degree to which individuals achieve reintegration into normal social activities). Treatment gains for PTSD severity were retained at 12 months ($p \leq 0.001$).

Norman et al. (2019) compared the efficacy of integrated prolonged exposure (I-PE) therapy (a past-focused therapy) with present-centred integrated coping skills (I-CS) therapy. The authors included 186 veterans seeking Veterans Affairs mental health services. Norman et al. (2019) also found that exposure therapy precipitated a greater reduction in PTSD symptoms and results showed that the I-PE arm had significantly higher PTSD-related treatment gains than the I-CS arm after treatment ($P = .047$) and 3-month follow-up ($P = .03$).

Back et al. (2019) evaluated the efficacy of an integrated treatment that incorporates Prolonged Exposure (PE) (Concurrent Treatment of PTSD and SUDs using PE) compared to Relapse Prevention (RP) among veterans. Intent-to-treat analyses revealed that PE, in comparison to RP, resulted in significantly greater reductions in The Clinician-Administered PTSD Scale (CAPS) ($p = 0.001$) and PTSD checklist-military (PCL-M) scores ($p = 0.01$). Both groups evidenced significant and comparable reductions in PTSD severity during treatment ($p=.001$). At 6-months follow-up, participants in the PE reported significantly fewer drinks per drinking day than participants in RP ($p = .05$).

'Seeking Safety'

Two studies focused on a well-established, evidence-based present-focused treatment for PTSD/SUD 'Seeking Safety' (SS) (Najavits at al., 2018; Boden et al., 2011). Both studies were veteran focused. Najavits at al., (2005) used fifty-two male and female veterans with current PTSD/SUD and Boden et al., (2011) used ninety-eight male military Veterans with a SUD and co-occurring PTSD symptomatology.

Boden et al.'s (2011) study focused on whether substituting Seeking Safety (SS), a manualised therapy for comorbid substance use disorders (SUD) and post-traumatic stress disorder (PTSD), for part of treatment-as-usual (TAU) improves substance use outcomes. Boden et al., (2011) found that SS and TAU compared to TAU was associated with better drug use outcomes ($P < 0.05$), but alcohol use and PTSD severity decreased significantly under both treatments ($P < 0.01$). SS versus TAU was associated with increased treatment attendance, client satisfaction and active coping (all P's < 0.01).

Najavits at al., (2018) compared past-focused treatment (Creating Change; CC) compared to Seeking Safety (SS) a more established, evidence-based present-focused treatment for PTSD/SUD. Both conditions improved over time, with reductions in PTSD ($p=0.001$) and alcohol use ($p= 0.005$). Change over time was primarily seen as an improvement from baseline to end-of-treatment, with gains sustained at follow-up, although for alcohol use there was continued improvement from end-of-treatment to follow-up.

Behavioural Couples Therapy

Rotunda et al., (2008) and Schumm et al., (2015) focused on the effectiveness of Behavioural Couples Therapy. Rotunda et al., (2008) examined the outcomes of Behavioural Couples Therapy (BCT) for nineteen dually-diagnosed veterans with combat-related PTSD and a substance use disorder (SUD, primarily alcohol dependence) and nineteen veterans with SUDs only. Each outcome showed improvement from before BCT to immediately after ($p=-0.01$) and 12-months after BCT ($p=0.01$). Both groups that received BCT indicated increased abstinence from drinking days and a decrease in negative consequences of drinking ($p=0.01$). Specific improvements noted were increased relationship satisfaction ($p=0.04$) and reductions in drinking, negative consequences of drinking, male-to-female violence ($p=0.012$), and psychological distress symptoms ($p=0.001$).

Schumm et al., (2015) focused on evaluating the effectiveness of Couples Treatment for alcohol use disorder (AUD) and for posttraumatic stress disorder (PTSD) (CTAP). CTAP is a 15-session, manualised therapy, integrating behavioural couple's therapy for AUD with cognitive–behavioural therapy for PTSD. Schumm et al., (2015) used U.S. male military veterans (N=13) and their female partners. There were 8 veterans who showed clinically reliable pre- to post-treatment reduction of PTSD outcomes. Schumm et al., (2015) found that there were significant group-level reductions in clinician-, veteran- and partner-rated PTSD symptoms. The study also reported that most veterans showed clinically reliable reductions in percentage days of heavy drinking (p=.022).

Integrated Cognitive Behavioural Therapy and Cognitive Processing Therapy

Capone et al., (2014) examined the effectiveness of Integrated Cognitive Behavioural Therapy (ICBT) and Kaysen et al., (2014) investigated the efficacy of Cognitive processing therapy (CPT). Capone et al., 2014 examined the feasibility of delivering integrated Cognitive Behavioural Therapy (ICBT) for co-occurring PTSD-SUD for Veterans who served in Iraq and Afghanistan. The individual analysis of Clinician Administered PTSD Scale (CAPS) scores and Patient Health Questionnaire-9 (PHQ-9) total scores found that three out of a total of eight participants exhibited a decrease in PTSD symptoms. However, it is noteworthy there are significant limitations to this study as the sample is very small (n=8) and the dropout rate was considerable (45.5%), higher than previous studies of ICBT (McGovern et al. 2010). It should also be noted that two of the participants who demonstrated clinically noticeable change in PTSD symptoms at post-treatment were non-completers of ICBT and there were no p values or effect sizes reported.

Kaysen et al., (2014) examined the effectiveness of CPT for veterans with PTSD and AUD, compared to veterans with PTSD only. Kaysen et al., (2014) found that PTSD and depression symptoms improved over time, regardless of the presence or absence of an AUD diagnosis. Those with past AUD, had higher pre- but not post-treatment PCL scores when compared to those with PTSD only, pre-treatment ($p < .001$) post-treatment ($p > .22$).

Web based CBT Based Interventions

Two studies focused on web-based interventions for veteran subpopulations with PTSD and substance use disorders (Acosta et al., 2017; Brief et al., 2013). Both studies reported using CBT based interventions within RCT research designs. Acosta et al. (2017) developed and examined the efficacy of a web-based self-management intervention based on Cognitive Behavioural Therapy (CBT) which focused on PTSD symptoms and hazardous substance use. Veterans with diagnosed PTSD and hazardous substance use were randomised to primary care treatment as usual (TAU; n = 81) or to TAU plus a web-based CBT intervention called Thinking Forward (n = 81). Thinking Forward participants reported significantly greater decrease in the number of drinking days in comparison with TAU participants. (p= 0.125) after all mediating variables were included in the analysis. Similarly, the intervention group showed a greater decrease in drug use days compared to TAU, although the results were not statistically significant (p=0.25). Likewise, there were no clinically significant change in PTSD symptoms in treatment groups as indicated by chi-square analyses.

In a similar vein, Brief et al. (2013) investigated the efficacy of a newly developed; 8-module, self-management web intervention (VetChange) founded on cognitive-behavioural and motivational principles to reduce alcohol consumption, address alcohol-related problems, and reduce PTSD symptoms in post combat veterans. Six hundred participants were randomised to either the VetChange group or the delayed intervention group. Results from the RCT indicated that intervention group participants showed a significant decrease in Drinking days (p.001), average weekly drinks (p.001), percent heavy drinking days (p.001), and PTSD symptoms (p.001) from Time 1 to Time 2. Between end-of-intervention and 3-month follow-up, all alcohol consumption variables (DDD p.01], AWD [p.001], PHDD (p.001) continued to show a significant decrease. There were no further changes in PTSD symptom scores for intervention participants during this juncture.

Brief Intervention

One study (Luciano et al., 2019) investigated the effectiveness of a brief intervention programme for individuals diagnosed with PTSD and concomitant diagnosis of AUD. This study found that PTSD severity was reduced after a one-session personalised feedback intervention that focused primarily on alcohol misuse, but also included information about

PTSD symptoms and coping styles. One aim of the study was to understand whether PTSD symptom severity and diagnostic status changed after exposure to an intervention that targeted alcohol misuse and integrated feedback on PTSD. PTSD symptom severity was significantly lower at the 6-week and 6-month and follow-up appointments relative to baseline ($p < .001$). However, it is apparent that caution should be taken with the interpretation of findings as the study did not include a no-treatment control group and that the small sample size limited statistical power. The authors also underline that it is possible that change in PTSD occurred because of other unmeasured variables.

Pharmacological Interventions

Four studies used a number of pharmacological interventions for PTSD and problematic substance use (Petrakis et al., 2012; Petrakis et al., 2015; Petrakis et al., 2006; Batki et al., 2014). The pharmacological interventions included Topiramate, Dilsulfiram, Naltrexone, Prazosin, Paroxetine and Desipramine.

Results from a pilot randomised study by Batki et al. (2014) considered the effectiveness of Topiramate as treatment of alcohol use disorder in veterans with posttraumatic stress disorder. Topiramate is a medication used to treat epilepsy and prevent migraine and has been used in the treatment of alcohol dependence. Results from the pilot of study indicated that Topiramate was effective in reducing in PTSD symptom severity as measured by the PTSD checklist score (PCL) and all three subscale scores from baseline through weeks 1- 12. Between-group comparisons showed the drug intervention group as having a significantly smaller number of drinks during weeks 1-12 compared to control group ($p=0,099$). In addition, there was a significant reduction in Obsessive Compulsive Drinking (OCDS) scores from baseline through week 12 within TOP ($p=0.002$).

Two studies Petrakis et al. (2006) and Petrakis et al. (2012) considered the effectiveness of Naltrexone as an intervention for substance use disorders and psychiatric symptoms of PTSD. Naltrexone is an opioid antagonist and works by blocking the effects of opioids from both inside and outside the body. It is also widely used in the treatment of alcohol craving. Petrakis et al. (2006) utilised a double-blinded RCT to investigate the efficacy of Naltrexone and Disulfiram in patients with alcohol dependence and current depression. The sample

(n=254) was comprised of almost 40% veterans who had a diagnosis of PTSD. There was a randomised assignment of subjects to either Naltrexone or Disulfiram. Antabuse (Disulfiram) is a drug used to support the treatment of chronic alcoholism by producing an acute sensitivity to alcohol. The intervention group reported significantly fewer drinking days per week (p=0.02) and a greater number of abstinence (p=0.04). Overall psychiatric symptoms of PTSD improved for all groups. The sub-sample of subjects with PTSD showed a significant decrease in PTSD symptoms over time in total Clinician Administered PTSD Scale (CAPS) score (p=001). The study used a predominately male veteran sample; hence the results are not generalisable to other clinical settings.

Petrakis (2012) also evaluated the adjunctive efficacy of naltrexone, relative to placebo in a study which compared the Serotonin uptake inhibitor (SSRI), Paroxetine, to the norepinephrine uptake inhibitor (SNRI), Desipramine. The all-male veteran sample (n=88) were randomly assigned under double-blind conditions to one of four groups: Paroxetine + Naltrexone, Paroxetine + placebo; Desipramine + Naltrexone; Desipramine + placebo. Findings indicated that Paroxetine did not show statistical superiority to Desipramine for the treatment of PTSD symptoms. However, Desipramine was superior to paroxetine with respect to study retention and alcohol use outcomes. Relative to paroxetine, Desipramine significantly reduced the percentage of heavy drinking days (p = 0.009) and drinks per drinking days (p = 0.027). In comparison with placebo, the effect of Naltrexone significantly decreased craving (p = 0.012); but it showed no advantage on drinking use outcomes. Petrakis (2015) also conducted a double blind RCT on the efficacy of Prazosin for (n=96) veterans with post-traumatic stress disorder and comorbid alcohol dependence. Results showed that symptoms of PTSD improved over time, but there was no significant effect of Prazosin on PTSD symptoms. Alcohol consumption also decreased over time, but again there were no significant differences in outcomes between intervention and control group. During the treatment phase of the study, there was a significant decrease in the average number of drinks over time (p=0.0001), but no significant effect of due to Prazosin. This was confirmed by GGT levels that significantly declined over time (baseline, weeks 4, 8, and 12) (p =0.0001). There were no significant differences in GGT levels for either intervention or placebo grouping (p = 0.39), or medication by time interaction (p=0.17). Similar to other Petrakis studies, limitations are apparent as the study was primarily with a

male veteran subgroup and therefore most likely render the results non generalisable to other populations.

A mixed pharmacological and psychosocial interventions study also considered the efficacy of Naltrexone plus an evidence-based treatment for PTSD (prolonged exposure therapy), their combination, and supportive counselling. The RCT included n=165 adult participants who met the DSM-IV criteria for current Alcohol Use Disorders and PTSD. They were randomly assigned to four groups; prolonged exposure therapy plus naltrexone (100 mg/d); prolonged exposure therapy plus pill placebo; supportive counselling plus naltrexone (100 mg/d) or supportive counselling plus pill placebo. Results from the study indicated that those who received naltrexone had a lower number of drinking days than those who received a placebo pill ($p = .008$). There was also a reduction in PTSD symptoms in all four groups, but the effect of prolonged exposure therapy was not statistically significant.

Limitations

Whilst the studies included in the interventions review above demonstrate a range of positive outcomes, the results must be interpreted with a level of caution. This is due to identified gaps in methodological rigour and study design. Despite most studies reporting randomised controlled trials there were a number of design flaws in the methodologies. For example: small samples, missing data, high attrition rate at follow-up and lack of control comparisons. Psychosocial studies were also more likely to report small sample sizes and showed a higher degree of heterogeneity (most notably in the brief intervention, integrated cognitive behaviour therapy and behavioural couples therapy studies). All studies focused on veteran populations which may limit transferability to general population contexts. Finally, future research should utilise high-quality randomised controlled trials to investigate single or integrated treatment modalities which include both pharmacological and psychosocial interventions.

Concluding comments and Implications for clinical practice

The primary aim of the study was to examine psychosocial and pharmacological interventions for individuals who have concomitant PTSD and Substance Use Disorders

which are linked to war or conflict related trauma. All studies included participants who presented with substance use disorders and conflict-related PTSD. In addition, all studies retrieved from the structured search were outpatient based and focused on veteran populations.

Twelve studies considered the effectiveness of psychosocial interventions with either single or integrative interventions vs treatment as usual (TAU) or relevant treatment models.

Five studies used forms of Trauma-focused CBT, of which three studies focused on exposure-based interventions. One study incorporated Integrated Cognitive Behavioural Therapy (ICBT) and one focused on Cognitive Processing Therapy (CPT). Two studies used Behavioural Couples Therapy whilst three studies incorporated the 'Seeking Safety' model (SS) which uses a present-centred integrated coping skills (I-CS), teaching coping skills for both SUDs and PTSD. Four studies focused on pharmacological only based interventions.

Results for exposure-based therapies indicated significantly reduced PTSD symptoms at post intervention junctures and six month follow up (Back et al. 2019; Norman et al. 2019). Furthermore, Kobach et al. (2017) reported significantly reduced PTSD symptoms at six and 12 months together with reported reductions in drug dependence indicators.

Results from both Seeking Safety studies, (Boden et al. 2011; Najavits et al. 2018), showed significant decrease in drug and alcohol use and significant reductions in PTSD symptoms at post intervention and follow up junctures.

Two web-based CBT studies showed mixed results. Acosta et al. (2017) found that there was a significant decrease in drinking days but a non-significant decrease in drugs use and PTSD symptoms. Brief et al. (2013) indicated a significant decrease in drinking days, average weekly drinks, and PTSD symptoms in the post-treatment phase. The significant decrease in alcohol consumption was maintained at the follow-up with no further changes in PTSD symptom scores for intervention participants during this period.

Topiramate reduced PTSD symptoms and incurred a significantly smaller number of drinking days at the post-intervention juncture (Batki et al. 2014). Two studies which considered Naltrexone (Petrakis, 2006 and 2012) showed significant decrease in drinking days and a significant decrease in cravings but no significant change in drinking outcomes.

One study examined the efficacy of Prazosin for dually-diagnosed PTSD and alcohol use disorder. Findings indicated no significant reduction in PTSD symptoms (Petrakis 2015). In addition, whilst there was a decrease in alcohol consumption for both intervention and control, these were not significant.

2.4 Review 4 - The role of cognitive factors in the maintenance of complicated grief following conflict-related bereavement

2.4.1 Introduction

Losing a loved one is arguably one of the most painful experiences in life. However, for the majority of the bereaved, the painful and debilitating symptoms of acute grief usually subside within the first year after the loss, leading to a restoration of satisfactory, if changed, life (Shear, 2011; Prigerson et al., 1995). Here, successful adaptation to a life without the deceased is possible without developing any severe physical or mental symptoms (Shear et al., 2015; Bonanno et al., 2004). These individuals experience a grief which is very painful but does not normally require clinical intervention, as it is considered a natural response to the loss of a loved one (Neimeyer and Currier, 2009). This grief process is commonly referred to in the literature as either "normal" or "uncomplicated grief" (Zisook and Shear, 2009). For the purpose of this review, we will use the term uncomplicated grief or UG to denote adaptive grief.

However, evidence suggests that there is a subgroup of individuals whose grief symptoms do not remit, instead developing into a chronic syndrome, commonly referred to as complicated grief (CG hereafter) (Horowitz, Wilner, Marmar and Krupnick, 1980; Horowitz, Stinson and Fridhandler, 1993; Horowitz, Bonanno and Holen, 1993; Prigerson et al., 1995; Shear, Simon, Wall, Zisook, et al., 2011). CG is also termed as prolonged grief disorder (PGD) (Prigerson et al., 2009), a protracted, incapacitating, and sometimes life-threatening response to the loss of a primary attachment figure (Neimeyer et al., 2014). For the purposes of this review, we will use the term complicated grief or CG to denote maladaptive grief. CG has been identified as a bereavement specific psychiatric syndrome, characterised by persistent separation distress. It can manifest in intense yearning for the deceased, together with shock, disbelief, anger, bitterness, and intrusive or preoccupying thoughts of the deceased that last more than 6 months after the death, resulting in a feeling that life is meaningless without the deceased (Shear et al., 2011). CG has been found to be associated with functional impairment, cognitive, emotional and behavioural symptoms, that persist

after the death of a significant other, resulting in reduced quality of life as well as increased morbidity and mortality (Prigerson, Bierhals et al., 1997).

Until recently, researchers and clinicians have used different diagnostic criteria and different assessment measures for disordered grief, as the previous diagnostic criteria had not been established and recognised (Killikelly and Maercker, 2018). Recently, however, a new diagnostic entity 'persistent complex bereavement disorder' (PCBD) was introduced to be included in Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) as a compromise between the two proposed diagnostic criteria for PGD (Prigerson, et al., 2009) and CG (Shear et al., 2010) and placed in section III of the 5th Edition of DSM (DSM-V) as a disorder requiring further study (Maciejewski, Maercker, Boelen and Prigerson, 2016; Reynolds, Cozza and Shear, 2017). Whilst the DSM-V has established working groups to investigate the validity, specificity, and treatability of the condition, the International Classification of Diseases (11th ed.; ICD-11; World Health Organization, 2016) accepted that PGD should now be accepted for inclusion in the recently published ICD-11.

There has been considerable debate in the literature as to whether CG warrants a distinct diagnostic category (Prigerson et al., 2009; Strobe et al., 2007) from its nearest neighbours, namely Major Depression Disorder (MDD) and Post Traumatic Stress Disorder (PTSD heareafter). Over the past three decades, an increasing body of research has shown that whilst CG and MDD share some similarities, they also have some key differences (e.g., Boelen, van den Bout, and de Keijser, 2003; Boelen and van den Bout, 2005; Horowitz et al., 1997; Latham and Prigerson, 2004; Ogrodniczuk et al., 2003; Prigerson et al., 1995; Prigerson et al., 1996; Prigerson, Horowitz and Jacobs et al., 2009). A key distinction between CG and MDD is whether the content of thoughts and emotions in the bereaved centres around the deceased (CG) or whether these are more generalised and associated with the loss itself (MDD). While intense and persistent longing for the deceased person is a core symptom of CG, a generally reduced interest in or ability to enjoy life is a core symptom of MDD, Kristensen Dyregrov and Dyregrov, (2017). In addition, there is evidence that CG, does not respond well to tricyclic antidepressants and seems to respond poorly to therapies designed to treat MDD (Shear et al., 2005).

In contrast, psychotherapy designed specifically for CG appears to be superior to non-specific interpersonal therapy (Shear et al., 2005), providing further support for the distinction between CG and MDD. Theorists have also questioned whether CG could be considered a form of chronic PTSD. However, research has demonstrated that there are key distinctions in symptoms of PTSD and CG. A central feature in PTSD is that the trauma memory has not been updated thus a common emotion is fear that the trauma will be re-experienced. In some PTSD presentations other emotions such as shame and guilt are also common. The primary emotions with CG are sadness and a "yearning" for a loved one. Whilst both conditions share some common symptoms such as intrusive thoughts and avoidance, those with PTSD commonly re-experience thoughts and images of the traumatic event, while people with CG experience intrusive images and preoccupation with the deceased person. Furthermore, in PTSD, avoidance is used to prevent recurrence of danger, whereas in CG avoidance is used to avert painful thoughts or feelings related to loss (Shear et al., 2011).

The majority of existing studies on the epidemiology of CG have involved clinical samples or specific subgroups (e.g., widowed elderly). Studies vary in their estimations regarding the prevalence of CG within the general population, however they do tend to report within the range of 2.4% (e.g. Fujisawa, 2010) and 7% (Kersting, 2011; Kristensen et al., 2017) for loss following natural deaths. However, higher CG prevalence rates of 18.6% have been found in hospitalised patients with unipolar depression (Kersting et al., 2009), and a prevalence rate of 24.3% has been reported by Simon et al. (2005) for bipolar patients. Within the bereavement literature, a range of factors have been identified as placing the bereaved at risk of developing CG. One, which is relatively consistent in the bereavement literature is gender, where females have been found to be at an increased risk for CG than males (e.g. Stroebe and Schut,2005).

The literature also indicates that those who have suffered a loss early in life are at an increased risk for psychopathology, such as CG following the loss of a loved one during adulthood (Silverman et al., 2001; Luecken, 2008; Prigerson et al., 2009). Loss type, such as the loss of a partner or child, have also been associated with an increased risk of severe chronic grief (Cleiren et al., 1991; Murphy et al., 2003; Songetal et al., 2010; Meert, Donaldson, Newth et al., 2010). One study by Kersting et al. (2011) found that those who

had lost a child had the highest prevalence of CG (23.6%). They also reported that the second-highest group with CG where those who had lost a partner (20.3%) which supported findings reported the previous year by Fujisawa et al. (2010), who demonstrated that the loss of a spouse was associated with a higher risk of CG than the loss of a parent or a sibling. In addition to the loss of a partner or child, another important grief-related factor in the context of CG is the cause of death. Sudden or violent losses are among the strongest predictors for the development of CG, as these loss types are more difficult to integrate than expected loss (Parkes, 1985; 2008). However, whilst sudden loss is commonly referred to as traumatic, evidence remains inconclusive with some studies reporting a relationship between sudden loss and CG (Lundin, 1984); whilst others have not (e.g., Bonanno et al., 1995). Violent loss on the other hand has been more conclusive with regards to its links with CG. Many survivors of violent loss (i.e., family and friends who lost a loved one to homicide, suicide, or fatal accidents) are at increased risk for a variety of psychological symptoms and disorders including PTSD, depression, and substance abuse (e.g., Amick-McMullen, Kilpatrick and Resnick, 1991; Kaltman and Bonanno, 2003; McDevitt-Murphy, Neimeyer, Burke, Williams, and Lawson, 2012; Zinzow, Rheingold, Hawkins, Saunders and Kilpatrick, 2009), as well as CG (Lobb et al., 2010). The prevalence of reported CG among those bereaved by violent death varies greatly 12.5% to 78.0% (Nakajima et al., 2012).

During times of war and civil conflict, sudden, violent losses are sadly commonplace, and evidence has shown significantly higher rates of CG within these populations (Mercer and Evans, 2006; Stammel et al., 2013). Again, rates vary widely across studies, ranging from 8% among Rwandan war widows and orphans (Schaal et al., 2010) to 54% in resettled Bosnian refugees (Craig et al., 2008). The variance in reported prevalence rates is thought to reflect factors such as comorbid mental disorders, lack of readiness for the death, difficulty in making sense of the death, as well as high levels of negative appraisal about the self, others and world.

Cognitive Behavioural theorists (e.g. Prigerson., 1995; Ehlers., 2006; Boelen et al., 2007; Shear et al., 2012; Duffy and Wild, 2017) have proposed hypotheses about the mechanisms that underlie CG which should be targeted in treatment. Three processes are seen as crucial in the development and maintenance of CG: (a) insufficient integration of the loss into the autobiographical knowledge base, (b) negative global beliefs and misinterpretations of grief

reactions, and (c) anxious and depressive avoidance strategies. These processes are offered to account for the occurrence of CG symptoms, whereas the interaction among these processes is postulated to be critical to symptoms becoming marked and persistent. However, there is a dearth of studies focused on examining the underlying mechanisms of CG in populations who have suffered from conflict-related loss and, to the best of our knowledge there are no published systematic reviews comparing and contrasting those studies that do exist. Thus, the aim of this systematic review was to provide a narrative synthesis of the current state of evidence, concerning the identification and role of specific cognitions which underlie CG. This included those who have suffered a sudden violent loss, as a result of war or civil conflict, as evidence suggests that subgroups of CG sufferers (e.g. sudden/violent versus natural loss) may differ with regards to their maladaptive cognitions. Given the potential long-term course of pathological distress following the loss of significant others (Byrne and Raphael, 1997; Chen et al., 1999; Morina et al., 2011), it is important to more accurately identify psychological factors associated with the maintenance of grief-related pathological distress. Thus, the research questions we wish to address are:

(a) What are the key cognitive factors implicated in the maintenance of CG in adults bereaved by conflict-related violent loss?
(b) How can these inform treatment practices?

2.4.2 Method

The search strategy for this study was conducted in two stages. The rationale for searching this way was to ensure that no key studies were overlooked. Prior to the review, the protocol for the study was submitted to PROSPERO - a prospective international register for review protocols - in January 2019 (registration number: CRD42019110319). Search methods and results were conducted and documented in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). The search strategy is explained in more detail in appendix 1.4.1 and the study selection and data extraction methods are explained in appendix 1.4.2.

2.4.3 Results

The combined electronic searches of seven databases and two libraries (Campbell and Cochrane) retrieved 2849 titles and abstracts. After adjusting for duplicates, 1348 studies were removed. In the first phase of the screening for eligibility, 1501 titles and abstracts were screened against the inclusion and exclusion criteria, resulting in a further 1298 studies being excluded as they did not meet the inclusion criteria. In the second full text phase, 203 were assessed for eligibility, of which 140 records were excluded for the following reasons: Does not report on cognitive maintenance factors: = n 61; No validated grief measure used: n = 12; Not published in a peer-reviewed article: n = 20; Same study, different article: n = 4; Not focused on traumatic or violent loss: n = 38; In patient study: n = 2; Duplicate n = 13 (see Fig. 1.4.4 in appendices). The rationale for the data analysis methodology is provided in appendix 1.4.3.

2.4.4 Study Characteristics

In total, 53 studies fulfilled our criteria for inclusion, 43 of which focused on violent, non-conflict related CG, with the 10-remaining studies focusing on violent conflict-related CG. For the purposes of the present sub review, we have conducted a narrative analysis of the 10 conflict-related studies. These will later form part of more extensive comparative analysis comparing the conflict and non-conflict studies (total = 53).

The 10 conflict studies presented in the present review reported data for 4,421 participants. The studies were published between 2010 and 2018. There was significant heterogeneity in relation to gender, age and loss type from the included studies. One study was conducted in the United States; two in Africa; four in Asia; two in Europe and one in Oceania, with sample sizes ranging from 21 to 2964. Eight studies focused primarily on adults, ranging in age from 18-97. Two studies included data from children aged between 12-18 alongside data for adults aged 18 and older. With these studies, data was only extracted for adults over the age of 18. Of the 10 studies, one focused on Survivors of Terror Killings, four on Survivors of Mass Conflict, three focused on Survivors of Genocide, one on Widowed Survivors of War and on military personnel (service members and veterans).

Trauma types present within the studies related to loss ranged from seeing dead bodies, the murder of family member(s), physical injury, witnessing strangers tortured and not being

able to perform cultural ceremonies for their dead. As outlined above, the included studies focused on war, civil conflict and terrorist-related CG, in both children/young people and adults. When we refer to conflict-related CG throughout the results and discussion section, we are referring to *war, terrorism or civil* conflict-related CG). The quality of evidence was mostly high (9 studies, range 20/22-22/22) to moderate (1 study rated 15/22), none were rated as of low quality. Characteristics of the included studies are presented in the Table 1 (Appendix 1.4.6), along with a quality rating for the strength of evidence.

2.4.5 Prevalence of CG

Rates of conflict-related CG have varied widely in the literature, ranging from 15.8% in one study of refugees/asylum seekers (Bryant et al., 2020) to 54% in a study reporting on resettled Bosnian refugees (Craig et al., 2008). Of the 10 studies included in the present review, six reported prevalence rates for conflicted-related CG, to varying degrees. The remaining four studies reported only on the individual symptoms of CG. The six studies reporting on prevalence rates estimates ranged from 8% (Hinton, Nickerson et al., 2103; Hinton, Field et al., 2013; Schaal et al., 2010) to 24.75% (Simon et al., 2017), higher rates of 49% (Rees et al., 2017) and 82% (Dyregrov et al., 2015) were also reported. However, whilst Hinton and Nickerson et al., (2013) reported prevalence rates of 8% using the Prolonged Grief Scale (PG-13) they also recorded significantly higher prevalence rates (31%) in the same study when they assessed CG using the Culturally Sensitive Measure of Grief-Related Distress (CSM-G). This raises the question, do the varying prevalence estimates for conflict-related CG reflect the differences in choice around psychometric measurement?

There was a notable amount of heterogeneity surrounding the psychometric measurement of CG in the studies. Whilst five of the studies used the PG-13 (PG-13; PGS; Prigerson & Maciejewski, 2007) to assess CG (Chukwuorji et al., 2018; Hinton, Nickerson et al., 2013; Hinton, Field et al., 2013; Weder et al., 2010; Schaal et al., 2010), two used the Inventory of Complicated Grief (ICG; Prigerson et al,1995) to assess CG (Simon et al., 2017; Dyregrov et al., 2015). One study used the Prolonged Grief Disorder Interview (PGD-I; Prigerson et al, 2009) (Morina et al., 2011) and two used their own 4 item pool to assess the core symptoms of CG (Tay et al., 2017; Rees et al., 2016). It is noteworthy that Tay et al., (2017) reported on

the importance of cultural differences as their primary reason for creating a culturally adaptive measure of CG.

2.4.6 Maladaptive Cognitions

Rumination and avoidance were among the cognitive maintenance factors reported on most within the included studies. One study (Chukwuorji et al., 2018) investigated the associations of rumination and rebirth concerns, with symptoms of CG following conflict-related loss. Their results showed that both intrusive and deliberate rumination had a positive association with CG. Another study (Morina et al., 2011) examined the independent contributions of rumination and experiential avoidance in predicting symptoms of psychological distress among widowed female survivors of war. Here, results demonstrated that both rumination and experiential avoidance significantly predicted the symptom severity of CG, depression and posttraumatic stress.

Furthermore, rumination accounted for additional variance above and beyond experiential avoidance and vice versa. Another study, investigating the consequences following unnatural and violent deaths linked with mass killings (Dyregrov et al., 2015), found that the bereaved siblings and parents oscillated between rumination with and avoidance of memories of their dead sibling or child. However, a noteworthy finding by Hinton, Nickerson et al. (2013) was the poor performance of the avoidance of reminders item in their study. They argue that avoidance of reminders is strongly influenced by cultural factors and that there is great variation in the extent to which forgetting or remembering the deceased is sanctioned across cultural groups (Rosenblatt, 2008).

2.4.7 Guilt/Responsibility Appraisals

Cognitive appraisals around guilt and responsibility have also been widely reported across the present studies. For example, Chukwuorji et al., (2018) studied the impact of rebirth concerns with symptoms of CG and found a strong association, however only in relation to males. They speculated that in these societies it was believed that the man is the owner of the home. Thus, the male participants may see the performance of the funeral rites, of the

bereaved persons, as their primary responsibility. In situations where the rites are pending, the burden of such situations may manifest in poorer mental health outcomes for the males. Related findings by Hinton, Nickerson et al., (2013) also found rebirth concerns to be a strong predictor of the severity of CG similar to findings by Chukwuorji et al. (2008), who speculated that this is due to the culturally prescribed rituals, including thinking about the deceased in a particular way and it is believed that failure to fulfil this ritual can have negative consequences for the deceased. Thus, rebirth concerns promote the continual thinking about the soul of the deceased, increasing responsibly and guilt appraisals and reducing cognitive avoidance. In their second paper, which focused on dreams (Hinton, Field et al., 2013) they reported that catastrophic cognitions, attributed to nightmares upon wakening, provokes negative emotions such as guilt and overwhelming responsibility to help the soul to be reborn through repeated rituals. Guilt and responsibility appraisals were also reported by Simon et al.(2017) who found that CG was associated with greater levels of trauma-related guilt and guilt cognitions, specifically hindsight bias/responsibility and wrongdoing.

2.4.8 Intrusive thoughts/Global Negative Beliefs

Intrusive thoughts, together with global negative beliefs and negative assumptive world views were also implicated in the severity of CG. In a study by Dyregrov et al. (2015) exploring the impact of the mass killing in Norway in July 2011, they found that bereaved parents and siblings struggled with a persistent and intense longing and yearning for the deceased, combined with intrusive thoughts and images of the killings, and that they moved between ruminating and avoiding these intrusions. Interestingly, the authors speculated that the persistently high levels of intrusion in most of the grieving family members may relate to the constant reminders in the media and in the community at large, thereby postponing the reduction of intrusion that normally takes place (Boerner et al., 2013).

The role of cognitive perspectives in the development and maintenance of CG was examined by Weder et al. (2010). They found, (in their study of Israeli Jews and Palestinians, n=21), that those who were more able to forgive, were less likely to report cognitive, emotional, and behavioural symptoms (CEBS) and psychological distress. In addition, they

reported a significant negative correlation between hope, separation and CEBS: that is, the more hopeful they were, the less likely the participants are to report separation distress and cognitive, emotional, and behavioural symptoms associated with the loss. These findings suggest that the cognitive lens through which we view others and the world (e.g., appraisals of peace processes, beliefs about the future) can be considered protective factors associated with CG.

It has been suggested that peace building programmes may foster forgiveness which could be helpful for some suffering from prolonged grief reactions. However, there is also the risk that such programmes can cause exacerbations for individuals if there is an unrealistic expectation of forgiveness and the individual who is not able to forgive feels guilty for not meeting these expectations.

Schaal and colleagues (2010) reported that religious/spiritual beliefs appeared to be protective factor against the development of problematic grief. They postulate, that this belief system, might offer potential consolation and the knowledge that there will be an afterlife and a reunification of family members, which can aid in the grieving process.

In contrast to the aforementioned studies, Tay et al. (2016) reported that those who had a strong perception of injustice, stemming from human rights violations, scored highest in the CG domains of anger/negative appraisal in addition to yearning/preoccupation and shock/disbelief. They also reported that the clustering of anger and negative self-appraisal, into a distinct subdomain, reflects the relationship between symptoms of emotional distress (intense bitterness and anger, difficulties in trusting others, negative appraisals of self an others) that arise from experiences of extensive traumatic losses, associated with gross forms of injustice. Together their findings resulted in the emergence of a novel dimension in the construct of CG (confusion/diminished identity) reflecting the shattering of global beliefs and assumptive world views.

2.4.9 Bitterness/Injustice

Bitterness is a negative emotion caused by a seemingly irreversible thwarting of a goal. Something in between anger and sadness, like anger it is often due to a perceived sense of

injustice, but it entails a sense of impotence both to react to injustice and to express one's anger. It's an emotion linked to disappointment concerning the behaviour of oneself, or another person one is affectively involved with, or of some agency one believes should guard justice. The disappointed expectation may take the form of a sense of betrayal, but sometimes simply comes from a disproportion between lavished effort or commitment and actual outcomes, and, when processed through rumination, results in bitterness (Poggi and D' Errico, 2009). Bitterness, stemming from an overwhelming sense of injustice, has been reported in a number of our studies. Weder et al.(2010) found that those participants who were not involved in peace and reconciliation groups reported more cognitive, emotional, and behavioural symptoms (CEBS) of CG (e.g., difficulty accepting the loss, bitterness or anger related to the loss, difficulty moving on with life, numbness; feeling that life is empty) than those who were engaged in such groups. Similarly, Hinton and Nickerson et al. (2013) reported the strong performance of the bitterness item in predicting CG severity, the item was often endorsed and had high sensitivity, and also had high negative predictive power, meaning that in its absence grief-related impairment was unlikely. These findings are in line with previous studies on the centrality of bitterness (Shear et al., 2011). Thus, they argue that bitterness may be a key factor in the maintenance of CG, independent of culture. Regarding the related theme of injustice, Rees et al. (2016) reported on the relationship between preoccupations with injustice and CG severity. They found, that compared to the low CG symptom class, both the grief and grief-anger CG classes reported more preoccupations with injustice for the two historical periods of conflict (the Indonesian occupation and the later internal conflict). Tay et al. (2016) supported these findings, concluding that conflict and loss, associated with a preoccupation with injustice, may be especially pathogenic in generating the anger/negative appraisal component of CG amongst refugees.

2.4.10 Meaning Making

Contemporary grief theories (e.g. Neimeyer et al., 2009) have highlighted the role of meaning-making in assisting the bereaved with the integration of their loss into their autobiographical memory. Meaning making, unsurprisingly therefore, has been highlighted in a number of our included studies as a crucial process in bereavement adaptation. The

Hinton and Field et al.(2013) study provides interesting findings on the cultural aspects of meaning-making. They proposed the ‘‘bereavement nightmare–PTSD model”, which suggests that once a nightmare of a deceased relative or friend occurs, it will worsen PTSD symptoms, which will, in turn, worsen nightmares, starting a vicious cycle. The problem here appears to be the distressing cognitions (appraisals) about these dreams, which commonly mean that the deceased has not been reborn and is in distress, triggering a process of rumination fuelled by guilt appraisals on the part of the dreamer. These highly negative appraisals are thought to block the process of meaning making and contribute to the severity in CG observed in this population. Thus, the authors recommend that treatment should include an assessment of the meaning of the dreams in that culture, the perceived spiritual status of the deceased, and the rituals indicated to assure a healthy spiritual status of the deceased Hinton and Field et al., (2013). Dyregrov et al., (2014) also found that parents and siblings, with severe CG, following the loss of a loved one in the Norway mass killings, reported an inability (understandably) in making sense of their loss. Interestingly, they speculated, that because the distress has remained elevated over time possibly due to ‘‘public noise”, meaning making may have evolved into rumination and further exacerbated distress and deteriorated understanding and integration of the loss.

2.4.11 Cultural Norms - Rebirth

Two of our included studies (Hinton, Nickerson et al., 2013; Hinton, Field et al., 2013) suggest that CG has culturally specific manifestations, in the Cambodian population, that are likely to influence the endorsement of one of the CG items, namely avoidance of the reminders of the deceased. In the Cambodian cultural context, complicated bereavement is closely related to concerns about the rebirth status of the deceased. If the deceased dies an unnatural death and does not receive a proper burial, the deceased is thought not to be reborn, but instead roam the earth, visiting the bereaved in dreams and thoughts. It is culturally mandated that surviving relatives think of the deceased and convey blessings to the deceased so that he or she may be reborn. Thus, in the Cambodian context, owing to rebirth concerns, the living are under a cultural mandate to complete ceremonies and daily rituals of remembering, to help the deceased to be reborn, which necessarily involves thinking of the deceased. This practice necessitates a degree of constant approach

behaviour, in contrast to the functional avoidance reported in Western forms of CG. Thus, it is likely that avoidance of reminders is strongly influenced by cultural factors. An additional finding by the authors, relates to the cultural context of dreams. In their discussion they point out that nightmares, which are frequent in trauma victims, have considerable cross-cultural pathoplasticity (i.e. the content varies by cultural beliefs) (Hinton et al., 2009), and that among persons with unresolved grief issues, these nightmares may take the form of nightmares about deceased relatives and friends (Hinton and Field et al., 2013).

2.4.12 PTSD CG link

When the mode of death is not only unexpected and unnatural but also violent, it increases the risk for comorbid CG and posttraumatic stress disorder (PTSD) Kaltman & Bonanno, (2003). Thus, it was not a surprise that a number of our studies have demonstrated a strong association between PTSD and CG. For example, Dyregrov et al. (2014) reported high levels of CG reactions (81%) in parents of lost loved ones which corresponded with high levels (61%) of PTSD. Their results show that both parents and siblings oscillated between an anxious preoccupation with (yearning: CG response) and avoidance of (PTSD response) memories of their dead siblings or child, suggesting that neither grief nor trauma symptoms can fully capture the unique experiences following the violent death of a loved one (Neria, Nandi, & Galea, 2008). Schaal et al. (2010) also reported, that the severity of PTSD symptoms was the variable that had the highest correlation with grief severity. They concluded that it is possible that symptoms of PTSD might interfere with the survivor's ability to successfully complete the mourning process. Any thoughts about the deceased may be suppressed, as they may automatically trigger trauma reminders, thus it could be, that the treatment of PTSD might facilitate the mourning process (Schaal et al., (2010). Simon et al. (2017) also found that CG in service men and veterans was associated with significantly greater PTSD severity, trauma-related guilt and guilt cognitions.

2.4.13 Discussion

This systematic review has identified and systematically analysed the available evidence on the cognitive maintenance factors underlying CG in those bereaved by conflict. To date, and to the best of our knowledge, no other systematic reviews have addressed the role of specific cognitions, implicated in the maintenance of CG, in those suffering from conflict-related bereavement. The studies included in this review reported significant variance with regards to prevalence rates for conflict-related CG (8%-82%). The rate of 8% is considered low in the context of violent conflict related CG, as previous studies undertaken with other refugee groups and persons who had experienced traumatic loss, including individuals who had lost a loved one during the September 11 terrorist attacks, recorded significantly higher prevalence rates (43%; Neria et al., 2007). This can also be seen amongst Bosnian refugees (54%; Craig et al., 2008) and survivors of the war in Kosovo (38.3%; Morina et al., 2010). A number of factors may have accounted for this variation. The first regards measurement, as noted earlier there was considerable heterogeneity in relation to the psychometrics utilised across the ten studies, thus making comparisons difficult.

Interestingly, of the six studies reporting on prevalence rates, those who utilized the PG-13 (PG-13; PGS; Prigerson & Maciejewski, 2007) reported prevalence rates of 8%, whereas those who reported higher prevalence rates (e.g., 24.75%; 49% and 82%) utilised either the ICG (Prigerson et al, 1995) or their own 4 item pool. Also of interest was the Hinton et al., (2013) study, here they utilised a single item measure of CG alongside the PG-13. Whilst the PG-13 yielded a prevalence rate of 8%, the single-item measurement yielded a prevalence of 31%, which is more in line with current prevalence rates reported in this area. It is also noteworthy that Tay et al.(2017) reported cultural differences as their primary reason for creating their own culturally adaptive measure of CG. Other possible explanations for the variability across the studies include caseness criteria and time since death.

Maladaptive Cognitions

Rumination and avoidance were the most commonly reported maladaptive cognitions reported upon among the studies presented in the present review. There were a number of interesting findings with regards to rumination and avoidance. The first (Chukwuorji et al., 2018) was a distinction between intrusive and deliberate rumination, moreover how they

were both associated with increased CG symptoms. This is in line with previous research which has consistently shown that ruminative tendencies predicted greater severity of post-bereavement grief (e.g. Allen, 2012; Delespaux and Zech, 2015; Harper, 2010; Morina, 2011; van der Houwen et al., 2010). Also, of interest were Dyregrov et al's. (2015) findings relating to the oscillation between rumination and avoidance of memories of their loved ones. Given that this study reported a strong correlation between PTSD symptoms and CG symptoms it is possible that what these individuals are experiencing, is the tragic push and pull between symptoms of PTSD and CG, where the symptoms of one are serving to maintain the other. Another notable finding arose in two studies by Hinton et al., (2013) relating to the cultural context of the avoidance of reminders item associated with CG. Thus, in the context of conflict-related CG, both rumination and avoidance need to be considered carefully in the context of culture and comorbidity to better understand their functions.

Guilt/Responsibility Appraisals

In this review, guilt/responsibility appraisals were implicated in a number of studies as potential cognitive maintenance factors linked with elevated CG. What was of interest in the present review was that cognitive appraisals around guilt and responsibility were reported primarily in relation to males. An obvious explanation for this finding is the protective role males play in the context of conflict. In two of the studies, however, the guilt/responsibility appraisals associated with CG severity were also attributed to cultural factors. Future studies may wish to explore this finding further in the context of conflict, gender and culture.

Intrusive thoughts/Global Negative Beliefs

In line with cognitive theories of grief, several of our studies investigated the impact of cognitive interpretations of the loss on CG outcomes and found global negative beliefs and negative assumptive worldviews to be associated with CG severity (e.g. Tay et al., 2017; Chukwuorji et al; 2008; Morina et al., 2011). This suggests that the subjective interpretation of the loss may play a crucial role in the development and maintenance of CG. Rumination

has been defined as repetitive thinking about negative emotions and a focus on causes, meanings, and consequences (Nolen-Hoeksema, 1991). Evidence from the studies presented here indicate that survivors of conflict-related violent loss may be more likely to engage in ruminative thoughts about the deceased's death, or what the survivor could have done to prevent this from happening (Dyregrov et al., 2014; Simon et al., 2017; Hinton, Nickerson et al., 2013; Hinton, Field et al., 2013).

Bitterness/Injustice

Studies examining the factorial structure of the CG reactions have consistently identified anger and bitterness as core components (Simon et al., 2011; Prigerson et al., 1999). In keeping with this and other research, the constellation of anger-bitterness has been included in the categories of persistent complex bereavement disorder (PCBD) [DMS ref], defined as a diagnosis requiring further empirical evidence in the DSM-5, as well as in the recently accepted ICD-11 definition of prolonged grief disorder (PGD) [ICD-11 ref]. In the present review one of the papers (Tay et al., 2017) outlined how two subdomains of shock/disbelief and anger/ negative appraisal were identified together to constitute the broad constellation of emotional distress included in CG.

The clustering of anger and negative self- appraisal into a distinct subdomain was thought to reflect the close nexus between symptoms of emotional distress (intense bitterness and anger, difficulties in trusting others, negative appraisal of self and others) that arise from experiences of extensive traumatic losses associated with gross forms of injustice. The authors concluded that it may be that losses associated with the extreme traumas of mass conflict and persecution are particularly potent in provoking these specific domains of grief, a finding that is broadly consistent with other studies in the field (Silove et al., 2009; Cardozo et al., 2004). Unsurprisingly, lack of access to justice arising from human rights violations was strongly associated with the CG domains of anger/negative appraisal in addition to yearning/preoccupation and shock/ disbelief. The nexus between the sense of injustice and anger/negative appraisal is consistent with general findings in past research amongst populations exposed to persecution and gross human rights violations (Rees et al., 2013; Silove et al., 2009; Silove et al., 2014; Brooks et al., 2011). The findings from Tay et

al's. (2017) study may assist in defining more clearly the nature of this link by emphasising the importance of CG as a major influence in generating anger/negative appraisals amongst populations exposed to extensive human rights violations associated with extensive traumatic losses.

Comorbid PTSD - CG

Violent death may evoke visual images of the deceased's final minutes, and cognitions about what he or she must have gone through (Baddeley et al., 2015; Smid et al., 2015). Survivors may subsequently engage in avoidance of these intrusive images. Several of the studies presented here have reported high comorbidities between CG and PTSD (Dyregrov et al., 2015; Schaal et al., 2010; Rees et al., 2016)). Depression and anxiety have likewise been considered as comorbid with CG (Simon et al., 2011; Morina, 2011). Thus Simon et al., (2017) concluded from their study, that individuals with PTSD may be at unique risk for CG, a finding also reported by Marques et al., (2013). This is not surprising, given that depression, PTSD, and CG are all disorders that can develop in response to a traumatic life stressor, such as a death, and they fall on a continuum of stress-related syndromes with partially overlapping symptoms and clinical presentations (Bonanno et al., 2007; Simon, 2012; Sung et al., 2011). Extensive research has focused on the treatment of symptoms of PTSD in the aftermath of violent conflicts (e.g. Duffy, Gillespie and Clark, 2007).

Considerably less research has engaged in developing and evaluating combined intervention programs for both PTSD and CG. Given the high prevalence rates of people experiencing comorbid CG and PTSD after exposure to conflict-related loss and trauma, there is a pressing need to extend research into the development of effective interventions for those suffering from CG and PTSD arising from conflict-related violence. In particular, it is important to determine whether a specific focus should be in trans-diagnostic psychological therapies provided for CG, PTSD, depression, and other reactions that constitute the usual focus of interventions for these populations. In devising interventions, research should investigate the treatment sequencing in comorbid CG and PTSD (integrated, sequential, parallel or single diagnosis) or whether treatment that helps with CG may result in an improvement of PTSD (and vice versa). It will be important to adapt the approach to ensure that it is sensitive to the history, culture, and context of each group.

2.4.13 Conclusions

The studies included in this review reported significant variance with regards to prevalence rates for conflict-related CG (8%-82%). There was considerable heterogeneity in relation to the psychometrics utilised to measure CG across the ten studies, thus making comparisons difficult however future studies may wish to examine the impact that both measurement and culture have on reported prevalence rates of CG.

Rumination and avoidance were the most commonly reported maladaptive cognitions underlying CG development. However, in the context of conflict-related CG, both rumination and avoidance need to be considered carefully in the context of culture and comorbidity to understand their functions better.

Guilt/responsibility appraisals were also implicated as potential cognitive maintenance factors, linked with elevated CG. In this review, cognitive appraisals around guilt and responsibility were reported primarily in relation to males. Future studies may wish to explore this finding further in the context of conflict, gender and culture.

Global negative beliefs and negative assumptive worldviews were strongly associated with CG severity, suggesting that the subjective interpretation of the loss may play a crucial role in the development and maintenance of CG.

This review highlights how CG may have significant influence in generating anger/negative appraisals, common amongst populations exposed to extensive human rights violations associated with extensive traumatic losses.

Finally, the link between CG and PTSD was evident in this review. Thus, it will be important to continue to provide current treatment approaches for this vulnerable population in the future, and continue to intervene in ways which are sensitive to the history, culture, and context of each group.

2.5 Review 5 – The management of comorbid chronic pain and PTSD linked to war and civil conflict: a rapid review of the literature

2.5.1 Introduction

It has been estimated that Northern Ireland has some of the highest rates of PTSD anywhere in the world, with some 8.8% of the adult population estimated to have PTSD at some point in their life (Mental Health Foundation, 2016). A proportion of victims of the recent Troubles have suffered from both psychological and physical problems as a consequence of violent attacks, beatings, shootings and explosions (Muldoon et al., 2005) and witnesses to traumatic incidents have reported with PTSD and chronic physical pain symptoms. Therefore, those citizens can benefit from any potential treatment breakthroughs for this particular combination of conditions. Such knowledge would also be of value to other countries and contexts where populations have been exposed to war and/or conflict-related trauma.

2.5.2 Definition of chronic pain

Chronic Pain (CP) is a complex multifactorial condition which has a myriad of implications not just for the patient as an individual but also for society as a whole.

The International Association for the Study of Pain defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” this pain becomes CP when it “persists or recurs for longer than 3 months” (IASP, 2011). Recent epidemiological analysis has estimated the prevalence of CP in the United Kingdom (UK) population to be 43.5% (Fayaz et al, 2016). Further analysis reveals that some 10-14% of the population suffer moderate-severely disabling CP, and in certain age groups i.e. Over 75, the prevalence of CP can be as high as 62%. It is therefore unsurprising that the financial cost to the population is massive, back pain alone costs the UK economy £10 Billion per year (Maniadakis & Gray, 2000).

Chronic Pain

Chronic pain is a by-product of a modification of the Central Nervous System, this modification is due to central sensitisation. Central sensitisation leads to an increase in reported pain with less and less provocation. This increase in reported pain is reportedly worse than it “should” be because there is nothing to compare other than previous pain experiences.

There is no specific factor that makes individuals more vulnerable to pain. In some people pain continues and flourishes. Many on the general adult population describe low back pain. There is also an even larger group that does not report pain. In imaging studies, the prevalence of reported structural change in the lumbar spine increases with age. These studies demonstrate that the degree of change reported on images does not correlate with the degree of pain and disability being related. The question then becomes, is this truly "back" pain?

Non-specific modifiable risk factors for persistent pain:

1. Smoking, excessive alcohol intake
2. Lack of exercise, poor nutrition, obesity
3. Stress, anxiety, depression, social isolation, discrimination, poverty
4. Poor sleep
5. Drug side-effects especially prescribed pain medication.

These risk factors weave a tangled web with each factor directly affecting the other. Thus, simple single treatment strategies are unsuccessful in providing pain relief.

Chronic pain can be considered as a series of false alarms generated by the human pain system. This pain system was designed as a threat detection system. The level of threat is governed by the brain's perception of how great the danger is. When the brain becomes sensitised to pain the false alarms occur frequently and loudly. With this increase of inputs, the filters in the CNS become overwhelmed and so the pain is perceived as persistent.

Activity in the in the brain's limbic system, responsible for motivation, behaviour and memory is a predisposing factor for chronic pain. The limbic system is particularly important in controlling the emotions that are connected with the pain experience. These emotions affect what we learn from painful experiences. An improvement in the emotional and learned response to pain can lead to an improvement in function.

Ongoing or continuous pain is more about sensitivity than injury. Managing this condition needs to take into account all potential stressors and the patient/client must be active in their own care.

Injury or a specific occurrence is often attributed to the start of the reported pain. However, can pain that persists beyond three months, normal tissue healing, be attributed to the 'original' injury. More likely it is the brain's interpretation of a situation that becomes increasingly more important and dominant.

The Victim and Survivor Service (VSS) undertook a Persistent Pain Review between 2017 – 2019 by engaging the expertise of Specialist Pain Management Consultant Dr John O'Hanlon and Specialist Pain Management Clinical Psychologist Dr Briege Hanna to carry out a holistic and professional review of 50 injured individuals in receipt of ongoing pain management interventions within VSS. The review aimed to ensure that interventions were being provided in a tailored way to meet individual needs and circumstances of those experiencing persistent pain in line with best-practice

guidelines and emerging research in line with National Standards and recommendations by the British and Irish Pain Society.

The review recommended that more than half of the individuals to continue the same treatment as previously funded by the VSS. These interventions included Physiotherapy and Complementary Therapies.

In addition, it was recommended that long term trigger point steroid-based injections were not currently recognised as a sustainable pain management approach by the NICE guidelines without the addition of programmes to develop patients/clients skills in managing their own pain. On this basis those in receipt of pain injections were supported in their transition to their local Health and Social Care Trust and VSS no longer fund this pain management approach.

2.5.3 Chronic Pain (CP) and Post Traumatic Stress Disorder (PTSD)

Among CP patients there exists a particular subset with comorbid Post Traumatic Stress Disorder (PTSD). Coupled with and complicated by Post Traumatic Stress Disorder (PTSD), these CP conditions prove particularly intractable and difficult for patients to endure.

To our knowledge, there is still a gap in the knowledge base regarding effective treatments for comorbid chronic pain and PTSD as a result of exposure to war and/or civil conflict.

2.5.4 Review Methods

A rapid review follows most of the principal steps of a systematic review, using systematic and transparent methods to identify, select, critically appraise and analyse data from relevant research. However, to provide timely evidence, a rapid review, by definition, differs from a systematic review in a number of respects as follows: the scope of the review is more targeted and focused; processes are either simplified or omitted, for example, by targeting or reducing the number of databases; a single reviewer is assigned at each step whilst another reviewer verifies the results; grey literature may be excluded or have limited use, for example targeting specific policy, Government or clinical sites. All of these elements formed part of this review methodology. We have systematically collated the various treatment strategies published in the literature which could benefit this subset of patients with co-morbid CP and PTSD.

Eligibility Criteria for the selection of papers

Ovid-Medline and Web of Science were searched for publications from 1994-2018. This timeframe was to correspond with the Diagnostic and Statistical Manual of Mental disorders (DSM-4) publication which was first to outline more precise criteria for the diagnosis of Post-Traumatic Stress Disorder.

A literature search was undertaken using MedLine and PubMed. The following terms were used: Post Traumatic Stress Disorder, PTSD, Stress, Anxiety, Pain, Chronic Pain, Catastrophising and Injustices

Studies selected for inclusion.

All studies located in the literature search are in the reviews section of the Appendices.

2.5.5 Initial findings from the first phase of the review

There is a wide range (22-93%) of people who report pain after a musculoskeletal injury (Rosenbloom). Rivara et al (2008) suggest that patients who are injured and have a psychological vulnerability such as pre-existing anxiety and/or depression are more likely to develop fear avoidance (Vlaeyen & Linton, 2000), catastrophising, anxiety, PTSD and all features of chronic pain.

Central sensitization is a condition of the nervous system that is associated with the development and maintenance of chronic pain. Predisposition to the development of central sensitisation is likely to include biological, psychological, and environmental factors.

Psychophysiological factors, such as the stress-response, are also apt to play a role in the development of central sensitisation. Direct experimental evidence on animals (Alexander, Imbie) and humans (Kuehl, et al, 2010) as well as prospective studies on humans (Slade et al, 2007) have shown a relationship between stress and lowering of pain thresholds. Psychophysiological factors suggest that the pre-existing state of the nervous system is important in the development of central sensitisation in response to pain including pain after injury.

A prior history of anxiety, physical and/or psychological insult and depression are significantly predictive of onset of chronic pain later in life (Nahit, et al, 2003). The pre-existence of these illnesses is more likely to lead to the development of chronic pain following an injury or physical illness. An already dysfunctional nervous system, at the time of injury may interfere with the normal healing time frame thus preventing pain from easing after the injury or tissue damage has healed.

Asmundson and Katz (2009) describe the role that anxiety and fear avoidance play in the development and maintenance of chronic pain. Depression is also a feature of chronic pain with a reported incidence of 32-54%. If mood is altered there is an increase in fear avoidance with an increase in reported pain (Kind & Otis, 2019).

PTSD or PTSD related symptoms can interfere with physical and /or emotional functioning. 3.5%-4.7% of people in the US experience PTSD each year (Goldstein et al., 2016). The rates of PTSD in chronic pain patients varies from 9-50% depending on the setting, population and the type of pain reported (Fishbain, et al., 2017). People reporting pain and PTSD exhibit much greater PTSD symptoms, pain, anxiety, depression and disability and are more likely to be a heavy user of pain

medications (Jenewin, et al., 2018). Another feature of chronic pain is catastrophizing (Vlaeyen & Linton, 2000) and this is considered a risk factor for PTSD. Returning US veterans (Alschuler & Otis, 2012) with PTSD show poor pain control and emotions and catastrophizing have a greater influence on their pain.

Concluding comments and Implications for Clinical Practice

When the brain becomes sensitised to pain, false alarms occur frequently and loudly and so the pain is perceived as persistent.

An improvement in the emotional and learned response to pain can lead to an improvement in function.

Activity in the in the brain's limbic system, responsible for motivation, behaviour and memory is a predisposing factor for chronic pain. The limbic system is particularly important in controlling the emotions that are connected with the pain experience. These emotions affect what we learn from painful experiences. An improvement in the emotional and learned response to pain can lead to an improvement in function.

Managing this condition needs to take into account all potential stressors and the patient/client must be active in their own care.

Management of chronic pain is moving from a medical based model reliant on single interventions such as medication and/or injections. For example, NICE guidance NG_59[2] for the management of low back pain in adults no longer recommends the use of steroid based injections and medications. What is also not recommended in this guidance is the use of surgery as a solution to back pain.

The focus is much more on the bio-psycho-social elements of the pain experience and if each of the three components is not addressed then the pain will continue and will continue to be reported as severe or getting worse.

Psychological distress can affect the psychosocial elements of chronic pain and if this is not managed appropriately, then there is no progress. Because pain has a physical dimension the patients are looking for a purely medical answer and most of the evidence indicates that this approach alone is not effective.

Trevino et al. (2020) and Dunne et al. (2012) have shown that early psychological therapies can reduce the impact of PTSD symptoms on chronic pain. The initial focus with this population group can be on the physical injuries and it is only in the post-injury period that there is consideration of the other potential sequelae of trauma.

[2] https://www.nice.org.uk/guidance/ng59

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