



Flinders University

Flinders Human Behaviour & Health Research Unit

**Department of Veterans' Affairs (DVA) – Literature Review on the psychological and vocational outcomes of delivering support services to the families of veterans at times of high family stress
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EXECUTIVE SUMMARY

This report details the results of a rapid literature review undertaken to describe and critically appraise recent research evidence regarding psychological and vocational outcomes of delivering support services to the families of veterans at times of high family stress. The literature review was undertaken in the context of the growing body of research and policy evidence suggesting that veterans can be challenged by transition from the Australian Defence Force (ADF) into civilian life, with a consequential direct negative impact on the wellbeing of family members. The aim of this literature review was to examine the peer reviewed research evidence regarding the support available to families of veterans in order to inform the establishment of a policy framework.

METHOD

The rapid review methodology was followed because it aligns with the knowledge to action intention of the task and is well suited to the short timeframe required. A systematic literature search was undertaken of all research studies published in English in peer-reviewed journals between 1st January 2010 and 1st August 2017 that examined whether the delivery of support services to families of veterans at times of high family stress results in better psychological and/or vocational outcomes for the veteran. The literature was screened against the below inclusion and exclusion criteria and evaluated for quality.

Inclusion criteria were: English language; peer reviewed; published 2010-2017; addresses veterans of current conflicts; the paper includes data collected from veterans, veterans' family members or both; refers to the effect on the veteran; reports on an empirical study; reports on evaluation of an intervention.

Exclusion criteria were: books, conference presentations, PhD theses/dissertations, commentaries/editorials/discussion pieces, protocols, posters, and grey literature sources (research not published in academic journals); focus is on currently serving members; focus is on National Guard unless it is specifically stated that they are veterans (i.e., no longer serving); papers collecting data from mixed populations (veterans and non-veterans); papers referring to older conflicts (prior to Operation Enduring Freedom/Operation Iraqi Freedom); papers from non-English speaking countries; focus is on issues for older veterans; reporting on the impact of support for the family only (i.e., no reference to the effect on veterans); reporting on data collected from health professionals; reporting only on correlations between family support and veteran wellbeing; papers reporting on dementia.

RESULTS

A total of 34 articles (33 studies and 1 descriptive literature review) were included in the review. The majority of the studies (n=32) were undertaken in the United States (US) involving US veterans, with only one Australian study identified. All studies examined the application of an intervention, with most of the studies reporting on interventions aiming to address post-traumatic stress disorder (PTSD) or traumatic brain injury (TBI) in veterans. Other areas of focus included couples therapy and involvement of the family in the veteran's care. All interventions were delivered by trained health professionals and focussed generally on outcomes related to veterans' psychological health. The majority of interventions were centre-based, with two undertaken in the veterans' home and four at couples' retreats. Limitations of the studies related to sample populations, sample size and follow-up.

Overall the interventions report positive effects on veterans' psychological and interpersonal outcomes. However, these results should be interpreted with caution due to small sample sizes and limited follow-up in the majority of studies. Also of concern, the literature demonstrates a distinct focus on therapeutic approaches to address the mental health care needs of veterans, with no studies identified that addressed vocational outcomes for the veteran or their family members, nor any addressing the broader psychosocial needs of

families within the wider communities in which they live their lives, and how such interventions might benefit veterans. This reflects a lack of focus on a more holistic understanding of the social determinants of health and mental health, and population health-based approaches, to proactively address the needs of veterans' families.

DISCUSSION

This rapid review of the literature highlights the lack of Australian programmes and research addressing the needs of veterans' families. The predominance of US studies suggests that the development of services for veterans' family members might still be in its infancy in most countries outside of the US. While the literature overall is limited in terms of sample population, sample size, and follow-up, it offers a number of avenues for exploration in relation to the potential to adapt programmes for use in the Australian context.

There is some strength of evidence for the family psycho-education programme, Reaching out to Educate and Assist Caring Healthy Families (REACH). As an adaptation of an existing psycho-educational mental health programme for families and with disorder specific modules, REACH could be investigated regarding revision and pilot testing in the Australian context.

A high level of evidence for family intervention for TBI is provided for the Veterans In-Home Program (VIP), a clinician delivered in-home programme for both veterans and family. While the sample population was drawn from those younger veterans already engaged in US Department of Veterans Affairs (VA) treatment, further research could assess whether this approach might be adapted for use in the Australian context.

There is also some evidence for interventions that support the veteran in engaging his/her family in their treatment. We suggest that DVA further investigate decision-making tools to involve family in order to consider ways in which both clinical and non-clinical staff can formally include a family component in working with contemporary veterans.

In contrast to the clinically delivered interventions, two web-based programmes with a good strength of evidence were found - Family of Heroes, an avatar-based programme specifically targeted to families of recently returned veterans, and Mission Reconnect, a self-directed programme of instruction in mind- and body-based wellness skills. Further research could assess whether either/both of these programmes could be adapted for use in the Australian context and possibly included with the At-Ease suite of self-help tools.

Only one intervention was specifically aimed at young children. The results from the use of the Sesame Workshop multimedia kit are promising but limited by lack of follow-up. As this tool addresses the psychological impact on children of veteran injury, it may justify further research to evaluate the effectiveness of a similar tool in the Australian context and whether it could be suitable for web-based use.

There were no parenting interventions identified in this body of literature, suggesting the need to develop and research interventions addressing this area of need. Furthermore, the studies generally focus on male veterans and their family members. With the growing number of female veterans, research is needed focussing on this veteran population.

The studies included in the review did not address the broader, practical socio-environmental needs of veterans and their families. However, it was clear that veteran and/or partner work schedules were barriers to engaging in or continuing with treatment. A further barrier to care identified in the studies was access to childcare. These key practical issues indicate that concerns for younger families regarding employment and childcare must be addressed when considering family/couple-based interventions for this cohort. Until this is done, the evidence for effective interventions will continue to be limited.

CONCLUSION

The diversity of approaches and the limited strength of evidence found within the studies suggest that currently there is no one approach that suits all family situations and that a diversity of approaches is likely to be warranted. More work is needed to develop interventions that address the broader psychosocial needs of veterans' families and evaluate how these might benefit veterans. Attending to work commitments and childcare needs appears particularly pertinent given the effect of these needs on veterans' and families' engagement in services reported in the literature.

RECOMMENDATIONS

The following points provide suggestions for where DVA could trial different support options or do further research. As noted previously, a diversity of approaches is likely to be warranted.

- The studies identified in this review were predominantly clinical; focussing on individual couples counselling. Not all families are the same; hence, future research must account for this structural, cultural, economic and social variation.
- Related to the above issue, the studies generally focus on male veterans and their family members. With the growing number of female veterans, further research is needed focussing on this veteran population.
- All studies were limited by lack of follow-up past three months to evaluate whether their positive effects were sustained over time. More longitudinal research is needed, ideally connecting the different stages of experiences and impacts, investigating the longer life-course of veterans and their families (from entry into military service, deployment, transition to civilian life, and veteran experience).
- Most of these studies did not consider the broader practical socio-environmental issues that impact on families, such as stresses of work, finances and child rearing. However, veteran and/or partner work schedules and access to childcare were barriers to engagement in treatments and support for this population. These issues have also been raised during consultations conducted in Australia and other countries with the veteran community. Further research could explore these issues, in detail. These issues must also be built into support and treatment programmes with this population.
- The strength of evidence for retreat-based PTSD group programmes for couples is limited. Understanding which veteran/family cohorts benefit most from this type of support would be useful, given that retreat-based programmes are also a recognised offering, generally, for these populations, either as couples or as individual veterans or family members (e.g. Carer retreats and Trojan's Trek). Such programmes draw heavily on the perceived benefits of peer support, an area that also requires more rigorous evaluation and more longitudinal evidence of impact.
- The family psycho-education programme, Reaching out to Educate and Assist Caring Healthy Families (REACH), could be investigated further by DVA regarding revision and pilot testing in the Australian context.
- A high level of evidence for family intervention for TBI is provided for the VIP programme in the studies by Moriarty et al. (2016) and Winter et al. (2016). This programme could also be investigated further by DVA regarding revision and pilot testing in the Australian context.

- DVA could further investigate decision-making tools to involve family in order to consider ways in which both clinical and non-clinical staff can formally include a family component in working with contemporary veterans. Studies examining the use of a decision-making tool, Recovery Oriented Decisions for Relatives Support (REORDER) (Dixon et al., 2014; Gioia et al., 2014) could help to guide this work.
- Web-based programmes providing a good strength of evidence were noted and may have appeal to the contemporary veteran cohort, particularly as its use would fit in around family and work commitments (Albright et al., 2012; Interian et al., 2016). While the evidence for Family of Heroes is limited by small sample size and lack of follow-up, there is strong evidence for the effectiveness of Mission Reconnect. Further research could assess whether either/both of these programmes could be adapted for use in the Australian context and possibly included with the At-Ease suite of self-help tools.
- Only one study (Walker et al., 2014) was specifically aimed at young children. Further research to evaluate the effectiveness of a similar tool in the Australian context, and whether it could be suitable for web-based use, could be considered.
- Several studies had criteria that excluded severe mental health issues, physical violence, and substance misuse; however, these issues are likely to contribute significantly to family distress. Further research, ideally focussed also on prevention and early intervention for these issues, is important.
- The literature demonstrates a distinct focus that likely reflects the predominantly therapeutic approach currently taken by the United States Department of Veterans Affairs. Given the particular interest of the DVA in vocational outcomes for veterans, DVA could explore ways to collaborate with education providers (such as TAFE colleges and universities) to improve their literacy regarding the needs of veterans and their families.
- Parenting programmes developed specifically to support military families during reintegration to reduce parenting stress and mental health distress, and enhance parental efficacy, show promise and could be explored by DVA as part of the suite of supports available to veterans and families in the transition to civilian life.

Background

Life in the defence force can have a positive effect on service members. However, for some individuals the exposure to, and consequent reactions to, traumatic events in the course of their military service can have a negative effect on their physical, mental, and social wellbeing (Oster et al., In Press). Veterans of contemporary conflicts in particular experience high rates of post traumatic stress disorder (PTSD) and traumatic brain injury (TBI), considered 'signature wounds' of operations in Iraq and Afghanistan, in addition to polytrauma, suicide, substance abuse, military sexual trauma and domestic violence (Institute of Medicine, 2013; Institute of Medicine, 2014; Johnson et al., 2013). This in turn can have a direct negative effect on veterans' family members, particularly children and at-home spouses (Lester et al., 2010). There is also a growing body of evidence suggesting that veterans can be challenged by transition from the defence force into civilian life (Elnistky et al., 2017), with a consequential direct negative effect on the wellbeing of family members (Hinojosa et al., 2010).

Family members themselves affect the health and wellbeing of veterans. This includes direct effects, such as the reported impact of family support on veteran health outcomes (Wright et al., 2013) and use of mental health services (Meis et al., 2010). For example, in a systematic review of support mechanisms and vulnerabilities in relation to PTSD, Wright et al. (2013) found low-family support to be associated with PTSD. Meis et al. (2010) investigated how PTSD symptoms and relationship distress predict utilisation of mental health services in a longitudinal sample of National Guard soldiers. The study suggests a positive association between supportive intimate relationships and mental health treatment utilisation. In addition, research suggests that concern about their family can affect veterans' mental health both during deployment and at reintegration into civilian life (Wadsworth et al., 2013).

Given the reciprocal effect of veterans and family members on each others' health and wellbeing, there is increasing recognition of the need for support to be provided to the veterans' family (Centre for Research on Families and Relationships, 2012; Cozza, Holmes & Van Ost, 2013; Cozza, Lerner & Haskins, 2014; Manser, 2015; Søndergaard et al., 2016; Wadsworth et al., 2013). For example, Fast, Yacyszyn, and Keating (2008) identified the following four areas of need for family caregivers of younger Canadian veterans released from active duty with high levels of disability:

- Economic needs (assistance to maintain or increase engagement in the labour force)
- Health needs (related to physical and mental health problems and the need for support and respite)
- Social needs (to address the isolation often associated with caregiving)
- Access to services (to address caregiver distress about what services are available and how they can be accessed)

A report commissioned by The Royal British Legion and the charity Combat Stress (Fossey, 2012) similarly discussed the need for research and policy around the needs of families of service personnel and veterans in the following areas:

- Alcohol (the impact of irresponsible drinking on families; the drinking habits of family members; the longitudinal impact of veterans' excessive alcohol consumption on families)
- Domestic violence (the need for research to support the development of appropriate support services)
- Mental health problems (the impact of veterans' mental health problems on the family, particularly children)
- Family support (particularly support addressing the emotional and psychological needs of families)

The Søndergaard et al. (2016) review, commissioned by the Forces in Mind Trust in the UK, focussed on four themes associated with transition to civilian life:

- Engagement between service providers and families (methods of communicating with families and barriers to accessing information)
- Family breakdown (Does transition to civilian life act as a trigger for relationship breakdown?)
- Housing support (examined families' access to information regarding housing support before and during transition, as well as how their needs are met by housing providers)
- Spousal employment (examined barriers to employment for the spouses of serving personnel and Service leavers, as well as ways to overcome these obstacles; also aimed to identify evidence of the benefits to ex-Service personnel of having a spouse in employment)

However, their review contained no discussion of the impact of family support on veterans' health outcomes.

In line with these concerns and issues, a recent Australian study by Waddell, Pulvirenti, and Lawn (2016) gave voice to and highlighted the importance of understanding the lived experience of partners caring for Vietnam veterans. The study revealed the fundamental importance of protecting the intimate relationship, of the coping strategies adopted over a long period of time, and highlighted the importance of understanding how partners support veterans with PTSD as well as their own ongoing needs. A further outcome of this research was a sense of urgency reported by partners of veterans to protect younger partners from having the same lived experience.

These concerns have also been reported in the recent Female Veterans and Families Forum facilitated by the Australian Department of Veterans' Affairs (DVA) in Brisbane in December 2016, which identified a number of issues related to families of veterans, including:

- The need for families to be cared for, not just the veteran
- The need to support partners of veterans when things are tough
- The need for more proactive support
- Recognition of particular life events that can cause stress for veterans and their families (for example, related to role changes, housing, employment, childcare, and education)
- Recognition that families come in all shapes and sizes and support must be flexible and able to be tailored to individual circumstances

This confirms the significant support needs of families of veterans and how veterans' needs and their families' needs are integrally linked, and the benefits that accrue for veterans when their families are also supported.

In addition to the forum, the DVA have recently received a number of requests to provide family support to veterans as a means of removing a barrier to a veteran being able to fully participate in health treatment, rehabilitation, or return to work programs. In some of these situations, the request for assistance could not be readily met within the guidelines of existing DVA services. As such, DVA identified a need to review the evidence regarding the types and level of support provided to families as a basis for developing a policy response.

With the growing number of veterans entering civilian life after serving in contemporary conflicts (Gill, Bain & Seidl, 2015), and the identification of the need for families of veterans to be supported, the DVA commissioned a rapid review of the literature on the psychological and vocational outcomes of delivering support services to the families of veterans at times of high family stress.

Please Note: We understand high family stress to refer to mental, physical and social wellbeing issues that put the veterans and their families, as a family unit, under significant pressure in their daily lives.

Methods

The rapid review methodology outlined by Khangura et al. (2012) was followed because it offers a sound methodology that is internationally recognised for its rigor, aligns with the knowledge to action intention of the task, and is well suited to the short timeframe required. The stages of the rapid review are: (1) Needs assessment (conducted by DVA prior to engaging the researchers); (2) Question development and refinement; (3) Proposal development and approval; (4) Systematic literature search; (5) Screening and selection of studies; (6) Narrative synthesis of included studies; (7) Report production; (8) Ongoing follow-up and dialogue with knowledge users.

DEFINING THE RESEARCH QUESTIONS

The following four questions were proposed:

- What are the unmet needs of families of recently discharged veterans?
- Does the delivery of support services to families of veterans at times of high family stress result in better family functioning?
- Which type of family support services maximise family functioning during periods of high stress?
- Does the delivery of support services to families of veterans at times of high family stress result in better psychological and/or vocational outcomes for the veteran?

Through ongoing discussion with DVA during the literature search and analysis process, it was agreed that the review would focus on the question,

Does the delivery of support services to families of veterans at times of high family stress result in better psychological and/or vocational outcomes for the veteran?

SEARCH STRATEGY

The PICo tool (referring to the characteristics of the **P**opulation, the phenomena of **I**nterest, and the **C**ontext) was used for defining the search terms, providing a validated method for determining the main concepts and alternative search terms, reducing the likelihood that publications will be missed (see **Appendix 1**). In consultation with the Flinders University Medical Librarian (Ms Leila Mohammadi) key databases were identified, the PICo tool was applied to determine potential search terms, search terms were comprehensively refined, and databases were then searched based on these terms.

A search of the Medline, Emcare, PsycINFO and Proquest (Health & Medicine, Social Sciences Collection) databases was undertaken in August 2017 using the following search terms (see **Appendix 2** for a list of the combinations of search terms used for each database):

- Veteran, Military personnel, Soldier, Reservist, Home guard
- Family, Children, Parent, Father, Mother, Sibling, Sister, Brother, Spouse, Partner, Carer, Caregiver
- Social Support, Psychosocial support, Psychological support
- Mental health, Personal autonomy, Resilience, Coping, Stress, Mental stress, Compassion fatigue, Well-being, Wellbeing
- Social isolation, Loneliness, Social alienation, Social exclusion, Social marginalisation, Social adaptation, Social skills
- Physical injury

Inclusion and exclusion criteria, and the rationale for these criteria, are outlined in Table 1.

Table 1: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria	Rationale
English language	Papers not in English or from non-English speaking countries	The focus of the review is on interventions that might be applicable in the Australian context. Studies in non-English speaking countries (e.g., Iraq) are likely conducted within different service provision contexts. Countries where significant fighting within the context of war has also been experienced by the civilian population are likely to mean that families and veterans there face unique issues related to ongoing concerns for safety and security that are different to the Australian experience
Peer reviewed; The paper reports on an empirical study	Books, conference presentations, PhD theses/dissertations, commentaries/editorials/discussion pieces, protocols, posters, and grey literature sources	Selecting for publication type aims to optimise the quality of sources in the literature search. The limitation to peer reviewed literature was also specified in order to allow a rapid review to be undertaken
Published 2010-2017		This publication date range was specified by DVA in order to identify up-to-date, relevant material and allow a rapid review to be undertaken
The paper includes veterans of current conflicts (from Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) onwards)	Papers focussing on conflicts prior to OEF/OIF; Papers focussing on issues for older veterans, such as Vietnam veterans; Papers reporting on dementia	The population criteria were selected in order to ensure coverage of the more common issues facing contemporary veterans of current conflicts (as specified by DVA). Vietnam veterans are a distinct group with discrete and different experiences related to their transition to civilian life, and their current needs are increasingly related to ageing
The paper includes data collected from veterans, veterans' family members or both	Currently serving members; National Guard unless it is specifically stated that	The focus on veterans and their families reflects the need for information on this population group; currently serving members, National Guard members, and non-military populations have different

	<p>they are veterans (i.e., no longer serving);</p> <p>Papers collecting data from mixed populations (veterans and others, where their veteran status is not a focus);</p> <p>Papers reporting on data collected only from health professionals and reporting their views of services</p>	<p>experiences (e.g., frequent re-deployment of National Guard member) and service provision environments;</p> <p>The exclusion of papers reporting only on data collected from health professionals reflects the focus of this review being on measurable outcomes for veterans rather than only on health professionals' views of services</p>
<p>The paper must refer to the effect on the veteran</p>	<p>Papers reporting on the impact of support for the family only (i.e., no reference to the effect on veterans) (e.g. interventions to reduce carer burden/improve carer wellbeing)</p>	<p>The focus on outcomes for veterans was specified by DVA to reflect their service population focus</p>
<p>The paper reports on evaluation of an intervention</p>	<p>Papers reporting <i>only</i> on correlations between family support and veteran wellbeing (i.e., not reporting on an intervention relating to improving family support for veterans)</p>	<p>The focus of this review was on the outcomes of interventions provided to veterans' families, rather than on understanding the relationship between family support and wellbeing</p>

SCREENING PROCESS

After removing duplicates, two reviewers conducted the initial screening for inclusion based on the information in the title and abstract. Each reviewer screened half of the records. Full text articles were then collected and screened again by both reviewers for final inclusion. Agreement was reached for all potentially included and excluded articles, with any discrepancy discussed and resolved. Reasons for exclusion are presented in Figure 1 in the results section. The reference lists of included studies were searched for additional articles.

The following information was extracted from papers that met the inclusion criteria:

- First author
- Year
- Study type
- Country
- Population(s)/setting
- Number of participants
- Method of recruitment
- Main findings and recommendations
- Limitations
- Level of evidence

- Quality of evidence

EVALUATION OF EVIDENCE

Each study was assigned a level of evidence based on the study design using the Joanna Briggs Institute Levels of Evidence (2014). The JBI levels were chosen in place of the National Health and Medical Research Council Levels of Evidence because they cover a broader range of study designs for effectiveness studies (e.g., case studies) and have included levels of evidence for meaningfulness (incorporating qualitative and mixed methods studies).

The quality of each study was assessed using the Critical Appraisal Skills Programme checklists for randomised controlled trials, case control, cohort, systematic review, and qualitative study designs (CASP, 2017), with the assessment tools developed by the UK National Heart, Lung and Blood Institute (NHLBI) used for before-after and observational cohort/cross-sectional study designs (no CASP tools were available for these designs). These tools aim to provide a framework for examining the extent to which the study outcomes can be attributed to the intervention rather than confounding factors arising from flaws in the research. The process involves answering a series of questions relating to how the study was conducted and reported, and using the outcomes if this to make a judgment about the potential risk of bias in the study. An assessment of quality (good, fair, or poor) is then made. Two reviewers independently assessed the articles for quality, discussing and agreeing on the final assessment where there was a discrepancy.

A narrative synthesis of the articles was then undertaken. A narrative synthesis aims to “provide an overview of the evidence identified, organized in an intuitive way, with the goal of providing knowledge users with a sense of volume and direction of available evidence addressing the topic of interest” (Khangura et al., 2012, p.5).

Results

The database search retrieved 3982 records (see Figure 1). After removing duplicates (n = 1284), the first stage review of the titles and abstracts resulted in the exclusion of a further 2610 records. For the remaining 88 articles, full-text papers were reviewed for eligibility against the inclusion and exclusion criteria, after which a total of 34 articles (33 studies and one descriptive literature review) were included in the review. The reference lists of these articles were then searched, with no further articles identified.

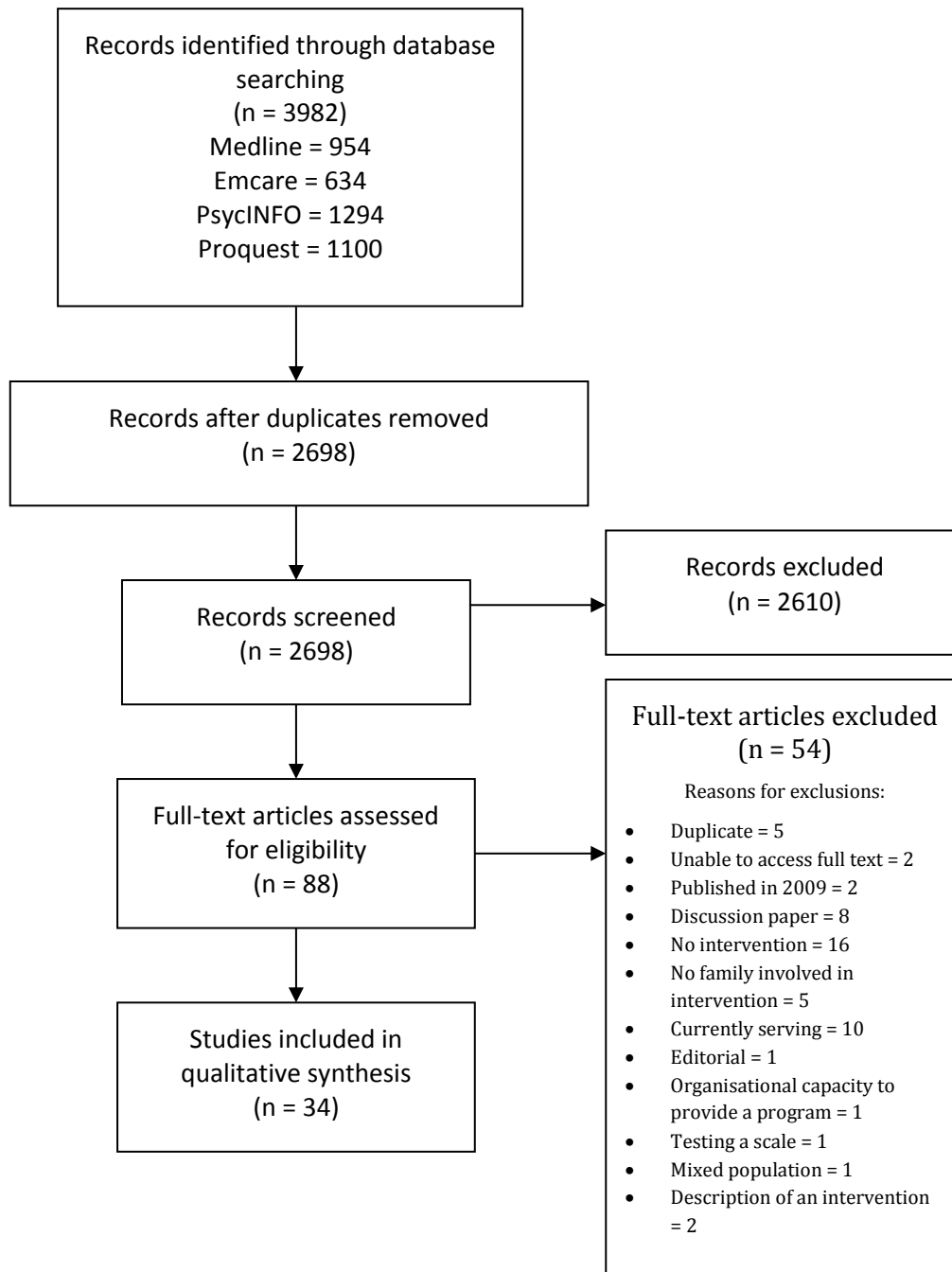


Figure 1. PRISMA flowchart representing the number of records retrieved at each stage of the review.

A table of the included articles is provided in **Appendix 3**, with the reference list provided in **Appendix 4**. Table 2 below provides a summary of the levels of evidence, quality ratings, intervention types and country of the included articles.

Table 2. Summary of the included articles

	Number of Articles
JBI Level of Evidence	
Levels of Evidence for Effectiveness	
1c (RCT)	11
2d (Before-After)	12
4b (Cross-sectional)	3
4d (Case Study)	5
Descriptive Literature Review (No level)	1
Levels of Evidence for Meaningfulness	
3 (Qualitative)	2
Quality Rating	
Good	24
Fair	9
Poor	1
Intervention Type	
Couples/family therapy for PTSD/TBI/AUD/Mood Disorders	20
Couples Therapy (general)	4
Education for family/spouse of veterans with PTSD	2
Promoting family involvement in care	2
Program to prevent relational aggression	2
Family intervention to promote post-deployment readjustment	1
Program to help carers assist children to adjust to veteran injury	1
Counselling - general	1
Country*	
USA	32
Australia	1

*Literature review not included

As can be seen in Table 2, the majority of the studies were Before-After studies (n = 12) and randomised controlled trials (RCTs) (n = 11), and most studies were of predominantly good quality (n = 24). Nearly all of the studies (n = 32) are from the United States of America involving US veterans. One Australian study was found (O'Donnell et al., 2013), but no

studies from Canada, the United Kingdom or New Zealand were identified. Nearly all of the studies (n = 32) were linked to the US Department of Veterans Affairs (VA) and involved the couple (the veteran and his/her spouse or partner) as the focus, with only one study aimed at supporting children (Walker et al., 2014).

One narrative literature review was identified (Sensiba & Franklin, 2015). While the review includes a broad range of information from both veteran and non-veteran cohorts, we included it in this rapid review because it provides a useful overview of the types of interventions available for veterans and their families. The authors reviewed six family interventions for combat-related PTSD. The interventions examined included: cognitive behavioural conjoint therapy; integrative couples therapy; strategic approach therapy; family systems therapy; multifamily group psychoeducation; and parent management training. Overall, the authors report the strongest support for cognitive-behavioural couples-oriented interventions and psychoeducation. They note the need for further research on interventions addressing the needs of children and the broader family system.

All other studies included in this review examined the application of an intervention. Most articles (n = 20) reported the outcomes of interventions aiming to address post-traumatic stress disorder (PTSD) or traumatic brain injury (TBI) in veterans (Blount et al., 2015; Church & Brooks, 2014; Fischer et al., 2013; Fredman et al., 2011; Hayes et al., 2015; Interian et al. 2016; Luedtke et al., 2015; McDevitt-Murphy, 2011; Monk et al., 2016; Monk et al., 2017; Perlick et al., 2013; Sautter et al., 2014; Sautter et al., 2015; Sautter et al., 2016; Schumm et al., 2013; Schumm et al., 2015; Sensiba & Franklin, 2015; Sones et al., 2015; Straits-Troster et al., 2013; Winter et al., 2016). Other areas of focus included couples therapy and involvement of the family in the veteran's care. All interventions were delivered by trained health professionals and focussed generally on outcomes related to veterans' psychological health. The majority of interventions were centre-based, with two undertaken in the veterans' home and four at couples' retreats.

The following section presents a narrative review of the studies in answer to the research question:

Does the delivery of support services to families of veterans at times of high family stress result in better psychological and/or vocational outcomes for the veteran?

For clarity, the studies have been categorised and presented by intervention type. Couples/family therapy is organised into two sections, the first section focussing on studies addressing veterans' mental health, the second discussing studies of couples therapy not specific to any mental health condition. Other intervention types include: education for PTSD; promoting family involvement in veteran care; prevention of relational aggression; promotion of post-deployment adjustment; adjustment for children of veterans who have sustained injury; and general counselling.

COUPLES/FAMILY THERAPY SPECIFIC TO VETERANS' MENTAL HEALTH CONDITIONS

The largest number of studies focussed on couples/family therapy specific to veterans' mental health conditions (n=20). The studies explored the effectiveness of specific therapeutic approaches that involved both the veteran and their spouse/partner/family member on clinician, veteran, and partner ratings of the veteran's mental health symptom severity, as well as relationship functioning. The literature review by **Sensiba and Franklin (2015)** provided a descriptive account of the same therapeutic interventions with similar findings and with no additional studies that met the inclusion criteria for this review.

Studies focussed on PTSD, Traumatic Brain Injury (TBI), and Alcohol Use Disorder (AUD) and are described separately for each of these categories.

PTSD focussed

Commonly referenced in the extracted literature is the high prevalence of PTSD in US veterans of contemporary deployments, with estimates cited as being in the range 30% and more for US veterans deployed since 2001. This literature also contains the emerging focus on the importance of including intimate and family relationships in treating PTSD in veterans. Couples/family therapy interventions for veterans with PTSD have used a number of therapeutic approaches, including Cognitive Based Conjoint Therapy (CBCT), Structured Approach Therapy (SAT), multifamily group therapy, mindfulness biofeedback, Emotional Freedom Techniques (EFT) alongside Complementary and Alternative Medicine (CAM) techniques, and group psycho-education alongside couples therapy and CAM.

Cognitive Based Conjoint Therapy (CBCT): Three studies involved CBCT as the intervention (**Fredman et al., 2015; Schumm et al., 2013; Luedtke et al., 2015**). The psychological premise underlying this type of therapy is that PTSD in veterans affects the intimate relationship and that reactions from family can impede or promote recovery. Relationship difficulties can be viewed as a risk factor for, or consequence of, PTSD. Conjoint therapy has been developed to account for this bidirectional association, with the unit of intervention being the relationship and in particular the behaviours that contribute to and maintain the PTSD and relationship difficulties. The therapy comprises 15 couple sessions of 75 minutes each over 3 phases. This therapy is based on the concept of 'partner accommodation', where the partner alters his or her own behaviour to minimise exposure to stress for the veteran. Because these changed behaviours are considered to maintain avoidance and interfere with veteran recovery, the focus is on the trauma and the avoidance behaviours (of places, people, and situations) in the relationship. Couples need to be committed to working on the relationship and CBCT is not suitable in cases of substance abuse or intimate partner violence.

Overall the studies found that CBCT reduced symptoms of PTSD in veterans at follow-up, with relationship improvements reported by the partners. One case study of good quality with an Operation Iraqi Freedom (OIF) veteran and his partner (**Fredman et al., 2015**) found the veteran no longer met the diagnostic criteria for PTSD at the end of the treatment period. A higher level of evidence was provided by **Schumm et al. (2013)** in a Before-After study of fair quality with six OIF/Operation Enduring Freedom (OEF) veterans and their partners. This study found that all six veterans met PTSD diagnostic criteria at pre-treatment but none of the five with complete data met the criteria at post-treatment. Large and significant effect size reductions were also found in clinician, veteran, and partner ratings of veterans' PTSD symptom severity. A large improvement was found for partner-related relationship adjustment and all six partners rated their relationship as non-distressed at post-treatment.

A further good quality case study by **Luedtke et al. (2015)** with a US veteran and his partner described the effectiveness of the application of a shortened version of the CBCT protocol, with the integration of mindfulness interventions and the inclusion of a weekend group retreat at the beginning of therapy with four other couples. The inclusion of the group retreat was based on research citing the benefits of offering group experiences to veterans and their preference for shorter durations of treatment. Outcome measures administered at pre- and post-treatment for both the veteran and his partner indicated that the veteran's symptoms of PTSD had improved to the level that he no longer met the diagnostic criteria. A considerable improvement was also found with self-reported overall relationship functioning by the veteran and his partner.

While these studies do not provide a high level of evidence due to very small sample sizes and limited follow-up to assess if outcomes have been sustained over time, they do indicate positive but preliminary outcomes, with larger, more robust studies needed. In addition, all four studies identified competing time pressures with work, study, or childcare arrangements as barriers to engagement with and continuation of participation in treatment.

Structured Approach Therapy (SAT): Three studies examined the application of SAT with OEF/OIF veterans (**Sautter et al., 2014; Sautter et al., 2015; Sautter et al., 2016**). This intervention is also situated in the psychological theories that understand PTSD as having a bidirectional relationship with family distress and the emerging consensus that treatment of the veteran should include the intimate and family relationships. Again the reluctance of recently returning US veterans to engage in mental health treatment and the inclusion of family as a motivating factor are cited in providing background context.

The authors compared this type of conjoint couples therapy with the CBCT therapy examined in the studies outlined above. Whereas CBCT has an emphasis on modifying couples' maladaptive cognitions, SAT is described as targeting the trauma-related affect, which is destructive to the relationship, using a stress inoculation paradigm that involves the use of in vivo partner-supported trauma exposure. SAT is also a manualised conjoint therapy (where steps are followed from a manual so that everyone gets the same/similar treatment) that provides trauma education, empathic communication, and emotion-regulation skills training, and disclosure-based conjoint exposure sessions. The sessions include psycho-education about the effect of trauma on relationships, communication training, enhancement of intimacy, and partner-assisted in vivo exposure. It consists of twelve 60-minute sessions over four phases with partner-assisted in vivo exposure occurring in the last phase.

Two studies (**Sautter et al., 2015; Sautter et al., 2016**) were RCTs of good quality and one was a Before-After study (**Sautter et al., 2014**), also of good quality. Overall, the studies found SAT to deliver significant reductions in anxiety with a trend towards significant reductions in depression for partners, and reliable reductions in PTSD symptoms and significant improvements in relationship adjustment for the veterans. A high level of evidence for this therapy is provided in the study by **Sautter et al. (2015)**, which compared SAT to a manualised 12-session couples-based educational intervention. Participants were 57 dyads comprising OEF/OIF veterans with a diagnosis of PTSD and their partners who were randomly assigned to intervention (SAT) or control (couple education) groups. Data were collected at pre-treatment, post-treatment, and at 3-month follow-up. Loss to follow-up was less than 30%. While veterans in both groups exhibited improvement in PTSD symptoms, 15 (52%) veterans in the intervention group no longer met the diagnostic criteria at 3-month follow-up compared with two (7%) in the control group. These are positive but preliminary outcomes and further studies would be required to test whether such outcomes could be maintained over longer periods of time.

Self-compassion within mindfulness biofeedback: Another therapeutic approach is the use of self-compassion within mindfulness biofeedback treatment to assist in helping individuals with PTSD to better engage with themselves and their environment. One fair quality case study (**Klich, 2016**) illustrated the clinical application of this therapeutic technique with a US veteran and his partner (as support person). Self-reported outcomes, and observations by the clinician, included less hyper-alertness within group settings, being able to address arousal in the body, reduction in escalation of anger and fear, and reduction in pain. As a single case study, the evidence for this therapeutic intervention is weak and further research would be required.

Reaching out to Educate and Assist Caring Healthy Families (REACH): Another therapeutic approach explored in the research is a family psycho-education programme designed specifically for delivery in the VA for veterans with PTSD and their family members. Reaching out to Educate and Assist Caring Healthy Families (REACH) is described as a 9-month, three-phase programme involving the veteran and any adult defined as 'family' by the veteran (**Fischer et al., 2013; Sherman et al., 2015**). It is a multifamily group therapy model used in general mental health treatment and adapted for use in the VA system. The REACH programme is described as targeting three separate diagnostic cohorts, namely PTSD, mood disorders, and schizophrenia with the interventions delivered separately for each cohort. Disorder-specific content is tailored for each group. Sessions are facilitated by

a psychologist and involve development of knowledge about the particular disorder, and skills in managing the effect on family.

The REACH intervention has been evaluated in two studies, one with veterans with a diagnosis of PTSD and the other with veterans with mood disorders. In a Before-After study (**Fischer et al., 2013**) with 100 veterans and their family members (predominantly partners), data collected over the course of treatment showed improvements for veterans and family member in knowledge, relationship satisfaction/distress, social support, veteran quality of life, and use of VA mental health services. Outcomes of a Before-After study (**Sherman et al., 2015**) with a 101 veterans with mood disorders and their family members showed similar findings with veterans showing reductions in diagnostic symptoms and both veterans and family members showing improvements in family coping strategies, family communication, problem-solving behaviours, and empowerment. Both studies had a focus on encouraging greater engagement in further VA services with increased use as a finding. While both studies provide a good level of evidence for REACH as an effective intervention, they are limited by lack of follow-up past the 9-month treatment period, the selection of participants already using VA health care, and the age range of the sample which consisted primarily of Vietnam and Persian Gulf veterans, and veterans who had been dealing with PTSD for a long time. While the studies did include contemporary veterans in the sample, further research would be required to test the effectiveness of REACH with this cohort of veterans and their families.

Couples Retreats: While most studies involve centre-based delivery of treatment, three studies examined therapies for veterans with PTSD and their partners delivered at retreats (**Church & Brooks, 2014; Monk et al., 2016; Monk et al., 2017**). Retreats enable interventions to be delivered intensively over a short time period, an issue mentioned frequently in the literature with regard to engaging veterans of contemporary deployments. All studies were Before-After in design and had outcomes including reduction of PTSD symptoms in veterans.

The study by **Church and Brooks (2014)** differed from the other two studies in both perspective and focus. Taking a neurobiological approach to understanding the effects of PTSD on the brain, the week long retreat for veterans and their partners provided therapeutic interventions, including Emotional Freedom Techniques, together with Complementary and Alternative Medicine (CAM) techniques for stress reduction. These included Reiki, massage, yoga, guided imagery, art therapy, and acupuncture, which were self-selected. Significant reductions were found in measures of PTSD in both veterans and those partners who also met the diagnostic criteria for PTSD. However, evidence for the intervention is limited by lack of data collection on the use of specific CAM techniques and by considerable loss to follow-up (71%). The authors indicated that work schedule conflicts, family issues, and travel difficulties were reasons for non-attendance.

The other two studies (**Monk et al., 2016; Monk et al., 2017**) evaluated the effectiveness of a brief intensive veteran couples retreat model (VCIIR) in reducing distress (with a core focus on PTSD) using Before-After designs of good quality. The VCIIR model is described as providing a structure that promotes ongoing peer support for veterans with a diagnosis of PTSD. It is based on both a family systems perspective that argues that interventions for individuals may not be as effective when family and social support systems are not considered, and the psychological concept of vicarious or secondary traumatization. This is aligned with a general thrust in the US to provide more family-focussed interventions for veterans and their partners in recognition of the relational difficulties associated with combat experiences. Relational difficulties are cited as common presenting problems and motivators for treatment-seeking. The model for the retreat incorporates partners to provide them with psycho-education and therapeutic resources, and to assess their distress as well as that of the veteran. It includes group psycho-education, traditional couples therapy, along with CAM techniques such as yoga and massage, and other recreational wellness activities such as hiking.

The two studies assessed the effectiveness of the model with a one-week and a four-day duration retreat. Findings from both studies included decreases in PTSD symptoms for both veterans and partners, and significant reductions in distress. The study of the one-week retreat (**Monk et al., 2016**) involved 149 veteran couples who participated in one of eight, 7-day retreats. The majority of retreat participants (63%) were Vietnam veterans, with OIF/OEF veterans comprising 25% of the sample. Participants completed surveys at the start and end of the retreat and at a 6-month follow-up reunion, with a further slight decrease in PTSD symptoms in veterans suggesting that intervention effects were maintained. However, evidence for the effectiveness of the intervention in the one-week retreat is limited by a considerable loss to follow-up (37%) at six months post-intervention. Outcomes from the second study (**Monk et al., 2017**) examining the effectiveness of a shorter four-day retreat included a significant change in relationship adjustment from pre- to post-intervention for both veterans and intimate partners. Support persons reported increases in posttraumatic growth scores and there was a significant decrease in trauma symptoms for both veterans and support persons at post-test. Because there was no further follow-up data obtained after the intervention, there is no evidence that the effects were sustained over time. While the findings are positive, they are preliminary only and further research would be required to evaluate the effectiveness of this intervention in an Australian population.

Psycho-education for partners: In contrast to other studies described in this review, one study (**Sones et al., 2015**) evaluated a psycho-educational programme for female partners of veterans with PTSD. The authors describe the rationale for the group was based on evidence that partners wish to have their own support group or mental health treatment. The programme consisted of 10, weekly 90-minute sessions in a group format and encompassed psycho-education, developing a unified front with their veteran, self-care, communication skills, and relationship enhancing exercises.

Outcomes from the study included a significant reduction in psychological distress, with improvements in areas of relationship functioning reported qualitatively. Medium to large effect sizes were seen on pre- to post-treatment changes in relationship adjustment and confidence. While the outcomes were positive and the study used a RCT design, the quality of the study is fair, limited by a small sample size, loss to follow-up, and lack of follow-up past the end of the treatment. The authors also indicated loss of participants due to lack of childcare and competing work commitments.

PTSD and Alcohol co-morbidity

Two studies are based in the context of the high rates of co-occurrence of PTSD and alcohol use disorder (AUD) among veterans and worse couple-relationship functioning than in those couples with only one of these disorders (**McDevitt-Murphy, 2011; Schumm et al., 2015**). The underlying theoretical premise for inclusion of the partner, or significant other, is that PTSD negatively effects social relationships, and that poor social relationships are a risk factor for PTSD in veterans. Two studies examined the effect of therapy involving both the veteran and his/her spouse/partner on PTSD and alcohol use co-morbidity.

The first study (**McDevitt-Murphy, 2011**) examined the use of a cognitive-therapy based protocol, Veterans and Loved Ones Readjusting (VALOR), to treat OEF/OIF veterans with PTSD and comorbid alcohol use disorders. VALOR comprises 20 to 25 treatment sessions of which the significant other is asked to attend approximately ten. The significant other can be any trusted adult with whom the veteran has daily contact. They are provided with psycho-education about PTSD, alcohol misuse, social withdrawal and numbing, and the need for the veteran to have healthy social support. They are enlisted to support the veteran and are engaged in discussions about forms of avoidance behaviour that may affect veteran functioning. The second study (**Schumm et al., 2015**) examined couples treatment with the veteran and partner rather than other significant relationships. The model used was Couple Treatment for Alcohol use and PTSD (CTAP), which is described as a 15-session manualised psychotherapy that aims to reduce problematic alcohol use and PTSD while

improving relationship functioning. It integrates behavioural couples therapy for AUD with cognitive behavioural conjoint therapy (CBCT) for PTSD.

Findings from both studies were sustained reductions in alcohol use during therapy and reductions in PTSD symptoms. The study by **Schumm et al. (2015)** collected data from 13 male US veterans and their female partners at pre-treatment and 6-7 weeks after completing the therapy. There was a high rate of attrition and only nine couples completed the study, with only seven completing 12 or more sessions. The study found that eight veterans showed clinically reliable reduction of PTSD outcomes and in days of heavy drinking. The authors noted that as most veterans were unwilling to comply with an abstinence-based goal for alcohol use, the focus was shifted in the protocol to low risk drinking and harm reduction goals. However, evidence for either model is very limited. The study by **McDevitt-Murphy (2011)** is a case study and, while the study by **Schumm et al (2015)** provides a higher level of evidence as a Before-After design, it is only fair in quality due to small sample size and high attrition rate. Further research would be required for a reliable strength of evidence to be assigned to either of these models.

Traumatic Brain Injury (TBI)

Traumatic Brain Injury (TBI), like PTSD, occurs relatively frequently in veterans of contemporary conflicts; four studies explored TBI (**Perlick et al., 2013; Straits-Troster et al., 2013; Moriarty et al., 2016; Winter et al., 2016**). Two studies (**Perlick et al., 2013; Straits-Troster et al., 2013**) focussed on TBI, evaluating the effect of involving the spouse/family in therapeutic interventions. The intervention was based on the multifamily group model previously described by Fischer et al. (2013) and Sherman et al. (2015) and adapted for use with veterans with PTSD or mood disorders and their families. The context for the intervention was that the symptoms of TBI involving deficits in memory and executive functioning create challenges for the whole household. These are often linked with the complications of comorbid mental health conditions such as PTSD and depression. Similar to the REACH model, the intervention is delivered over nine months by trained clinicians and consists of individual family sessions, an educational workshop, and bimonthly multifamily problem-solving sessions.

Outcomes from the study by **Perlick et al. (2013)** using a Before-After design with 11 OEF/OIF veterans and their families included decreased veteran anger expression and increased social support and occupational activity, with family members reporting decreased caregiver burden. With a very small sample, this study provides limited evidence of effectiveness for this intervention. The authors identified issues with recruitment of participants, which included work/school scheduling conflicts and the need for childcare in order to attend sessions. These issues were reiterated in a second, qualitative study (**Straits-Troster et al., 2013**) with eight veterans and eight family members from the original study who participated in focus groups. While the themes elicited from the group data indicate a positive response in terms of increasing knowledge of TBI and building communication and understanding in relationships, access issues, need for childcare, and shorter treatment duration were highlighted.

Two studies (**Moriarty et al., 2016; Winter et al., 2016**) adopted a very different approach to an intervention for TBI from those discussed above. They evaluated the impact of a Veterans In-Home Program (VIP) designed for US military veterans with TBI and their families. Whereas the majority of the extracted studies have been centre-based, VIP is delivered by occupational therapists (OTs) in the veteran's home and with the involvement of the family. The home environment is considered as the preferred therapeutic modality rather than a VA medical centre. The intervention targets modifiable physical attributes of the home, how the veteran performs tasks, the family routines, and their communication patterns. Family perspectives are used to identify TBI-related problems in the home; veterans and their family members then receive education about TBI, and help with problem-solving and coping strategies. There is a strong focus on problem-solving training. The family support and education is intended to promote better outcomes for the veteran as

well as the family's own wellbeing. The programme involves up to six home visits by an OT and two phone calls by the OT over a 4-month period.

Findings included significantly lower depressive symptoms and caregiver burden scores, and higher community integration scores for the veterans. Both studies were based on the same good quality RCT and had the aim of assessing whether VIP was more effective than standard outpatient clinic care in improving family members' well-being across the domains of depressive symptoms, burden, and satisfaction, and veteran community re-integration. Participants were recruited from a VA outpatient polytrauma programme and consisted of 81 dyads with a veteran with TBI and a family member or partner in each dyad. Most veterans served post 9/11. Participants were interviewed separately at baseline and at 3-4 months post-intervention. As with the studies discussed above, the authors indicated that flexibility was needed with scheduling due to veteran/family work commitments.

These studies do provide a high level of evidence for the VIP programme. The quality of the study is good with a high attendance rate and small loss to follow-up. However, it is important to note that the study participants were already engaged in VA health care, which may limit generalisability to veterans who have yet to engage in treatment. More research would be required regarding transferability to the Australian veteran population.

COUPLES THERAPY (NOT SPECIFIC TO ANY MENTAL HEALTH CONDITION)

With a consistent theme in the literature of contemporary veterans being hard to engage in treatment, and with high dropout rates among this population, four studies examined different aspects of general couples therapy, rather than a specific type of therapy, on therapeutic outcomes (**Biesen et al., 2013; Doss et al., 2011; Doss et al., 2012; Davis et al., 2012**).

A cross sectional study of good quality by **Biesen et al. (2013)** examined the effect of couples' agreement about relationship concerns at therapy intake on the process and outcome of therapy. This was based in the context of understanding the importance of pre-treatment predictors of outcomes in couples therapy, particularly given the high rates of premature termination. The authors found that pre-treatment agreement predicted greater engagement in the process, with more positive treatment outcomes when therapy was brief and problem focussed compared with longer, more integrative therapy.

Two good quality studies using the same participant pool at two VA medical centres were undertaken (**Doss et al., 2011; Doss et al., 2012**). Using a cross sectional design, the first study investigated change in the course of couples therapy by identifying predictors of who is likely to experience a sudden gain (SG) rather than gradual change in the therapeutic process. The premise was that by understanding patterns of change, the optimal treatment dose (number of sessions) could then be developed. The investigators found that 25% of participants experienced at least one SG in relationship satisfaction during the course of therapy. The magnitude of these SGs was extremely large and occurred relatively early in therapy, with ethnicity a significant predictor.

In the context of effective interventions in intimate relationships potentially reducing and preventing difficulties such as divorce and veteran suicide, the second study aimed to determine whether characteristics measured at intake predicted effectiveness of couples therapy. Using a Before-After study design, some significant gains in relationship satisfaction were found for veterans. Ethnicity was again found to be a significant predictor of outcomes with both African American men and women showing greater gains than Caucasian participants, limiting generalisability to an Australian population. While the quality of both studies was good and the second study provided a higher level of evidence, OEF/OIF veterans were in the minority, which limits generalisability to a younger population.

Premature termination of therapy, with only a third completing a full course, affected the outcomes of therapy effectiveness with the reasons for this being unknown. Other limitations to be noted include variability in terms of the theoretical orientation of the therapists, and the duration and nature of the therapy provided.

A fourth study (**Davis et al., 2012**) examined participants' perceptions of therapy delivered during two initial weekend couples retreats (Operation Restoration) aimed at strengthening intimate relationships between OIF/OEF veterans and their partners. The authors reiterate that more recent veterans are more difficult to engage in treatment, and need shorter therapy and more couple-focussed treatment than Vietnam veterans. This study used a cross sectional design and was of poor quality as it measured perceptions of care rather than clinical gains, and had a high rate of non-completion of follow-up survey. However, as part of a post-retreat needs assessment, the authors identified that work, family, and money/finances were the most cited sources of stress for veterans and their partners. The authors note that participants were given a stipend to cover costs of childcare, pet care, and travel for the weekend retreats.

EDUCATION FOR FAMILY/SPOUSE OF VETERANS WITH PTSD

Two studies (**Albright et al, 2012; Interian et al, 2016**) using a RCT design and therefore providing the highest level of evidence, examined the application of a brief (1-hour) internet-based intervention to promote post-deployment stress and resiliency training simulation for partners, families, and friends of veterans. It is specifically targeted to families of recently returned veterans and involves an avatar-based programme, Family of Heroes, developed for the VA. The programme incorporates psycho-education to improve understanding of stress and PTSD together with communication strategies. The goal of the simulation is to prepare family members to support their veteran's and family's transition to post-deployment life by recognising the signs of stress and responding appropriately, including encouragement to use mental health services. The quality of the second study (**Interian et al, 2016**) was good and, while both studies demonstrated some positive outcomes in terms of veteran help-seeking and decreases in family members' reactivity to criticism, short follow-up, small sample size and small effects associated with the one-hour self-help intervention suggest further research is required along with assessment of transferability to the Australian context.

PROMOTING FAMILY INVOLVEMENT IN CARE

Two studies examined the application of a shared decision-making tool in veteran mental health care (**Dixon et al., 2014; Gioia et al., 2014**). The study by **Dixon et al. (2014)** used a RCT design but was of fair quality. The second study (**Gioia et al., 2014**) was qualitative and of good quality.

The tool, Recovery Oriented Decisions for Relatives Support (REORDER), is a manualised protocol utilising shared decision-making principles between the clinician and veteran in order to promote recovery and encourage consumer consideration of family involvement in their care. REORDER has two phases, each comprising up to three individual 50-minute sessions over approximately three to four months, and involves working with a clinician trained in the use of the tool. The veteran can decide to invite relatives to participate, following which they are provided with support, education, and strategies for helping to promote the veteran's recovery goals. The decision to invite family or not rested with the veteran's knowledge of their family's circumstances, whether they wanted them involved, and whether they were willing to take the risk to invite them.

Participants in both studies were veterans with serious mental illness (schizophrenia, schizoaffective disorder, bipolar disorders, and psychotic disorders) recruited from VA medical centres, and who had relatives with low levels of contact with treatment staff. The first study by **Dixon et al. (2014)** found improvement in measures of mental health recovery from inclusion of family members in care. The second study (**Gioia et al., 2014**) involved individual semi-structured interviews with 20 veterans who had completed the follow-up period from the first study and had involved a family member in their care. Questions were designed to probe the veterans' reflections on the REORDER phases. A number of key themes were elicited from the interview data. Benefits for and perceived burdens on families, through their involvement, emerged as themes, along with effects on self-identity of having a family member worry about them. Challenges to family involvement concerned the older veterans, in particular, in wanting to be self-protective, to maintain their sense of self as provider, and fear of further stigmatisation within the family. The authors noted that the younger veterans, in particular, liked the message that REORDER sends about the VA wanting to involve family members in veteran mental health care. While the quality of the study is good, understandings from this qualitative study cannot be generalised.

INTERVENTIONS TO PREVENT RELATIONAL AGGRESSION

One RCT (**Taft et al., 2016**) and one Before-After study (**Hayes et al., (2015)**) have evaluated the effectiveness of a dyadic group intervention designed to prevent relational aggression and its negative consequences. The intervention is based in the context of research that indicates a higher level of intimate partner violence (IPV) among military couples than in the civilian population. Relational aggression can affect the mental health of the partner and research has suggested a link with PTSD in veterans. A preventative focus is taken in interventions with relationship conflict viewed as an early precursor to violence. The studies used two versions of the intervention: Strength at Home Friends and Families (SAH-F) and Strength at Home Couples (SAH-C). The programme comprises a weekly session of two hours over 10 weeks with 3-5 couples in each group. It incorporates elements from couples and non-couples interventions for PTSD and targets social processing mechanisms hypothesised to explain the relationship between trauma and intimate partner violence, as well as common themes that may underlie trauma reactions and relationship difficulties emphasised in PTSD interventions. The programme is not considered suitable for couples experiencing severe physical aggression and/or high levels of substance misuse.

Outcomes from both studies included a reduction in psychological aggression. The study by **Hayes et al. (2015)** included family members or friends (25%) while the study by **Taft et al. (2016)** included only intimate partners. **Hayes et al. (2015)** found physical aggression to be unchanged while **Taft et al. (2016)** found fewer acts of reported physical violence, noting that severe aggression was an exclusion factor in both studies. The study by **Taft et al. (2016)**, as a RCT, provides a higher level of evidence and had a longer follow-up period with outcomes maintained at 12 months. It consisted of 69 dyads comprised of OEF/OIF veterans and their intimate partners. While there was loss to follow-up, the intervention group had a higher completion rate (59.5%) than the control group (34.4%).

While the findings are positive and the studies both provide a good level of evidence, further research would be required to evaluate the effectiveness of the programme in the Australian context.

FAMILY INTERVENTION TO PROMOTE POST DEPLOYMENT READJUSTMENT

A good quality RCT (**Kahn et al., 2016**) evaluated the effects of the use of Mission Reconnect (MR), a web-based, self-directed programme of instruction in mind- and body-based wellness skills. Again, this programme focusses on the partner as the primary support for the veteran with PTSD and emphasises the role of the relationship. MR is a dyadic intervention for post 9/11 veterans and their partners to use individually and together, teaching self-care strategies aimed at addressing short- and long-term impacts of deployment and promoting wellbeing. The authors describe the specific methods as grounded in evidence bases of mindfulness therapy, massage therapy, positive emotions, and caregiver education. It comprises video and guided audio exercises accessible via the programme website and mobile device applications.

The study involved 160 veteran-partner dyads in four US regions. Loss to follow-up was minimal. Outcomes included significant improvements at 8 and 16 weeks in measures of PTSD, depression, sleep quality, perceived stress, resilience, self-compassion, and pain. Significant reductions in self-reported levels of pain, tension, irritability, anxiety, and depression were found with the use of partner massage. The study was of good quality and provides a high level of evidence for this intervention. The positive outcomes are preliminary and further research would be required to evaluate the effectiveness of the programme in the Australian context.

PROGRAMME TO HELP CARERS ASSIST CHILDREN ADJUST TO VETERAN INJURY

Only one study was found with an intervention for children of veterans. **Walker et al. (2014)** used an RCT design to evaluate a Sesame Workshop multimedia kit called Talk, Listen, and Connect: Changes (TLC-II(C)). The kit uses video and print materials aimed at helping caregivers assist young children to adjust to their military parent's injury. The goal of the kit is to reduce anxiety in young children and develop age appropriate understanding of their parent's injury, as well as to help caregivers recognise and respond to signs of stress in children. It is based on Bandura's social learning theory and parental stress theory.

Participants were 153 families with children aged 2-8 years and in which the veteran had incurred an injury during their most recent deployment. The control group for the study received a kit without the trauma informed components. Materials were well used and highly rated, although caregivers reported that the materials were less liked by children in the intervention group, which the authors attribute to the more trauma informed focus. Both caregiver and child outcome data was collected, with findings suggesting significantly larger improvements in caregiver symptoms of depression and in children's social competence. Child outcomes were based on the caregiver perception only. While the design provides a high level of evidence and there was no loss to follow-up, the period of follow-up was limited to four weeks. Further research would be required to evaluate the kit with children and caregivers of Australian veterans.

GENERAL COUNSELLING (NOT FAMILY OR COUPLE SPECIFIC)

The only Australian study to meet the inclusion criteria for this review examined the effect of centre-based psychological counselling, delivered through the Veterans and Veterans Families Counselling Service (VVCS), on a range of mental health diagnoses in veterans

and their families (O'Donnell et al., 2013). O'Donnell et al. (2013) used data collected routinely at intake and session five, in addition to data specifically collected for the study at 12-month follow-up, to look at changes in symptoms of depression, anxiety, stress, and alcohol misuse from intake to follow-up using a Before-After study design. Participants consisted of veterans, partners, and sons/daughters. The findings indicate that VVCS centre-based counselling resulted in a significant reduction in depression, anxiety, stress, and alcohol misuse severity measured after five sessions, which were generally maintained over twelve months. Despite improvements, a high degree of symptomatology was maintained which the authors attribute to the chronicity and complexity of problems in the veteran population. While the findings were positive in terms of the benefits of centre-based counselling for these participants, the authors did not provide any information about the specific types of therapy delivered in relation to the outcomes.

Discussion

This rapid review of the literature aimed to examine the effectiveness of interventions provided to families of contemporary veterans at times of high family stress on psychological and/or vocational outcomes for the veteran. As discussed previously, we understand high family stress to refer to mental, physical, and social wellbeing issues that put the veterans and their families, as a family unit, under significant pressure in their daily lives. The literature search yielded 33 studies and one descriptive literature review relevant to the review. However, aside from one Australian study of the VVCS, all of the studies were undertaken in the United States involving US veterans. The lack of published, peer-reviewed literature from the UK, Canada, and New Zealand was surprising, and a brief search of the grey literature (research not published in academic journals) was undertaken to establish whether or not interventions had been implemented and/or evaluated in these countries. No interventions were found, which suggests that the development of services for veterans' family members might still be in its infancy in these countries.

The studies identified in this review were predominantly clinical; focussing on individual couples counselling. They included centre-based and retreat-based group therapy and psycho-education, in-home therapeutic and problem solving interventions for veterans and their families for TBI, and the use of online self-help psycho-educational tools. All interventions described in the studies measured psychological outcomes for the veteran, and for family members in several studies. Several included relational outcomes.

Twenty of the studies focussed on counselling/psycho-education interventions with a strong focus on the importance of including the intimate and family relationships in counselling for veteran mental health issues, and for PTSD in particular. The studies of the effectiveness of both Cognitive Based Conjoint Therapy (CBCT) and Structured Approach Therapy (SAT) indicate promising results among OEF/OIF veterans and their partners. All studies noted reliable reductions in veteran PTSD symptoms and improvement in relationship functioning for both veteran and partner. While the CBCT studies do not provide a high level of evidence due to study design and very small sample sizes, the SAT studies, especially the RCTs by Sautter et al. (2015) and Sautter et al. (2016), provide a higher strength of evidence for the effectiveness of this particular type of therapy. All studies, however, are limited by lack of follow-up past three months to evaluate whether these effects can be sustained over time. These types of therapy are very manualised, steps are followed from a manual so that everyone gets the same/similar treatment in the same order, which limits the interventions being individualised. They also require commitment from participants, and involve degrees of exposure of the partner/significant other to the veteran's traumatic experience(s). These therapies address cognitive and behavioural change at the individual level and as such they do not consider the broader practical socio-environmental issues that impact on the couple such as stresses of work, finances, and child rearing.

The strength of evidence for retreat-based PTSD group programmes for couples is limited. Unlike centre-based therapeutic approaches, these are designed to deliver interventions

intensively over a short time period and to build a degree of peer support. While shorter duration of treatment is frequently cited in the literature as a preference among US veterans of contemporary deployments and may suit a younger cohort for whom employment is a priority, these interventions are still clinical in focus. In addition, while studies report positive outcomes in terms of reductions in symptoms of PTSD in veterans, reduction in distress for partners, and improvement on relationship measures, high attrition (Church & Brooks, 2014; Monk et al., 2016), the limited younger veteran participants, and lack of follow-up (Monk et al., 2017) severely limit the evidence for the efficacy of this type of intervention. In addition, there is very limited evidence that they provide any ongoing peer support.

There is some strength of evidence for the family psycho-education programme, Reaching out to Educate and Assist Caring Healthy Families (REACH), which already existed in general mental health care and has been adapted for veteran/family use by the VA. The studies included in this review focussing on PTSD (Fischer et al., 2013; Sherman et al., 2015) indicated improvements for both veterans and family members across a range of domains, but the strength of the evidence is limited by lack of follow-up past the intervention period and a broad age range in the sample, which also limits generalisability to a younger veteran and family cohort. The studies focussing on TBI (Perlick et al., 2013; Straits-Troster et al., 2013) provide positive results in terms of veteran symptom reduction but strength of evidence is very limited by small sample size. Qualitative evidence provided by Straits-Troster et al. (2013) suggests that the duration of the programme (9 months) may be too long for contemporary veterans with work and family commitments. However, as an adaptation of an existing psycho-educational mental health programme for families and with disorder specific modules, REACH could be investigated further by DVA regarding revision and pilot testing in the Australian context.

A high level of evidence for family intervention for TBI is provided for the Veterans In-Home Program (VIP) in the studies by Moriarty et al. (2016) and Winter et al. (2016). There is a good strength of evidence for this clinician delivered in-home programme for both veterans and family members through these good quality studies with low attrition rates. However it must be noted that, as with the majority of these studies, the sample population was drawn from those younger veterans already engaged in VA treatment and limits generalisability to veterans yet to engage in treatment.

There is some evidence for interventions that support the veteran in engaging his/her family in their treatment. Two studies (Dixon et al., 2014; Gioia et al., 2014) examined the use of a decision-making tool, Recovery Oriented Decisions for Relatives Support (REORDER). Again this intervention is clinically delivered but is a recent development in the general mental health literature around recovery. Although this general literature was not part of this review, the findings of the study by Gioia et al. (2014) that younger veterans like the message given by the VA about wanting to involve families in their care warrants further consideration. We suggest that DVA further investigate decision-making tools to involve family in order to consider ways in which both clinical and non-clinical staff can formally include a family component in working with contemporary veterans.

In contrast to the clinically delivered interventions, two web-based programmes were found, both of which provide a good strength of evidence. The first, Family of Heroes, is an avatar-based programme specifically targeted to families of recently returned veterans and incorporates psycho-education to improve understanding of stress and PTSD together with communication strategies (Albright et al., 2012; Interian et al., 2016). The goal of the simulation is to prepare family members to support their veteran's and family's transition to post-deployment life by recognising the signs of stress and responding appropriately, including encouragement to use mental health services. The second, Mission Reconnect, is a self-directed programme of instruction in mind- and body-based wellness skills (Kahn et al., 2016). This programme is for contemporary veterans and their partners to use individually and together, teaching self-care strategies aimed at addressing short and long-term impacts of deployment and promoting wellbeing. While the evidence for Family of

Heroes is limited by small sample size and lack of follow-up, there is strong evidence for the effectiveness of Mission Reconnect. The minimal loss to follow-up over the 16-week study period indicates that this type of intervention may have appeal to the contemporary veteran cohort, particularly as its use would fit in around family and work commitments. Further research could assess whether either/both of these programmes could be adapted for use in the Australian context and possibly included with the At-Ease suite of self-help tools.

Only one study (Walker et al., 2014) was specifically aimed at young children. The results from the use of the Sesame Workshop multimedia kit are promising but limited by lack of follow-up. As this tool addresses the psychological impact on children of veteran injury, it may justify further research to evaluate the effectiveness of a similar tool in the Australian context and whether it could be suitable for web-based use.

Overall, the diversity of approaches and the limited strength of evidence found with the studies suggest that currently there is no one approach that suits all family situations and that a diversity of approaches is likely to be warranted. There are also some broad overarching limitations to be considered regarding the nature of sample populations, sample size, and follow-up. Most sample populations were already in receipt of, or seeking, VA services. Several studies had criteria that excluded severe mental health issues, physical violence, and substance misuse with a reliance on clinician assessment for referral, which may have introduced a number of biases. Sample sizes were generally small and follow-up severely limited in the majority of studies. These limitations need to be noted as an important caution in interpreting the overall results presented.

UNMET NEEDS

The literature demonstrates a distinct focus on therapeutic approaches to address the mental health care needs of veterans, likely reflecting the predominantly therapeutic approach currently taken by the United States Department of Veterans Affairs. No studies were identified that addressed vocational outcomes for the veteran or their family members, although several studies included veteran and/or partner work status in their demographic data. Given the particular interest of the DVA in vocational outcomes for veterans, literature excluded from the review that addressed educational or vocational interventions was extracted.

Three studies were identified, none of which included supports provided to family members. Two (Davis et al., 2012; Davis et al., 2014) reported on the same randomised controlled trial of individual placement support (IPS) supported employment for veterans with PTSD. The other article was an editorial describing a veterans outreach program providing VA services on a college campus, reporting a benefit of providing mental health and social work services on college campuses. A summary table of the three studies is included in **Appendix 5**.

The studies included in the review furthermore did not address the broader, practical socio-environmental needs of veterans and their families. However, eleven studies (Davis et al., 2012; Fredman et al., 2011; Blount et al., 2015; Schumm et al., 2013; Luedtke et al., 2015; Fischer et al., 2013; Church & Brooks, 2014; Moriarty et al., 2016; Perlick et al., 2013; Straits-Troster et al., 2013; and Sones et al., 2015) found that veteran and/or partner work schedules were barriers to engaging in or continuing with treatment. A further key concern highlighted in studies involving centre-based or retreat-based treatment was access to child care, which was again cited as a barrier to care (Fredman et al., 2011; Blount et al., 2015; Fischer et al., 2013; Church & Brooks, 2014; Perlick et al., 2013; Straits-Troster et al., 2013; and Sones et al., 2015). One study of retreat-based care provided payment for childcare (Davis et al., 2012). These key practical issues indicate that concerns for younger families regarding employment and childcare must be addressed when considering family/couple-based interventions for this cohort. Until this is done, the evidence for effective interventions will continue to be limited.

Another area of unmet need relates to parenting interventions. This was the focus of two studies that were excluded from the review due to focussing on National Guard populations (see **Appendix 6**). A study of Acceptance and Commitment Therapy (ACT) and parenting psycho-education for OIF/OEF veterans with PTSD reported positive outcomes for veterans, but is limited by its small sample size of only seven male veterans (Casselmann et al., 2015). A larger RCT of a parenting programme developed specifically to support military families during reintegration found greater reductions in parenting stress and mental health distress, and enhanced parental reflective capacity, including increased curiosity and interest in the young child, relative to the comparison group. Those participants with PTSD reported higher levels of perceived parental efficacy (DeVoe et al., 2016).

Finally, the studies generally focus on male veterans and their family members. With the growing number of female veterans, further research is needed focussing on this veteran population.

LIMITATIONS

As a rapid review, some limitations were placed on the methodology used to search the literature. These included omission of peer reviewed literature published prior to 1 January 2010, papers in English from non-English speaking countries, and omission of grey literature, including reports from governments and non-government agencies. Another limitation is that all except one study were US-based and there are cultural differences between Australian and American veteran populations, which may mean that direct comparisons and application of these US-based interventions to Australian veterans and their families cannot be assumed. Sample sizes were generally small and follow-up severely limited in the majority of studies; hence, these limitations need to be noted as an important caution in interpreting the overall results presented.

CONCLUSION

This rapid review of the literature indicates that interventions provided to families of contemporary veterans can and do have a positive effect on veterans' psychological and interpersonal outcomes. However, given the predominance of US-based interventions further research is needed to evaluate the effectiveness of similar interventions in the Australian context. With the focus in the literature on therapeutic interventions, particularly couples therapy, to address mental health problems, more work is needed to develop interventions that address the broader psychosocial needs of families and evaluate how these might benefit veterans. Attending to work commitments and childcare needs appears particularly pertinent given the effect of these needs on veterans' and families' engagement in services reported in the literature.

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Appendix 1: PICO Table

P	I	Co
<u>Population</u>	<u>Phenomenon of Interest</u>	<u>Context</u>
Veterans (ex-serving members)	Support for Family; Outcomes for Family; Outcomes for Veterans Related to Family Support	Contemporary conflicts
Veteran Military Personnel Soldier Reservist Home guard	Family, children, parent, father, mother, sibling, sister, brother, spouse, partner, carer, caregiver Social support, psychosocial support, psychological support Mental health, personal autonomy, resilience, coping, stress, mental stress, compassion fatigue, well-being, wellbeing Social isolation, loneliness, social alienation, social exclusion, social marginalisation, social adaptation, social skills Physical injury	Search terms relating to the context will not be used as this may results in articles being missed due to a lack of information on conflicts in the titles and/or abstracts.

Appendix 2: Search Terms Used for Each Database

2.1 MEDLINE SEARCH

#	Searches	Results
1	Veterans/ or Veterans Health/	13962
2	Military Family/	87
3	Veterans Health/	827
4	Military Personnel/	35901
5	(veteran* or reservist* or home guard*).tw,kw.	30285
6	or/1-5	66523
7	Family/ed, px [Education, Psychology]	20045
8	adult children/ or parents/ or fathers/ or mothers/ or siblings/ or spouses/ or single-parent family/	110370
9	family/ or interpersonal relations/	132577
10	(family* or children* or sibling* or parent* or sister* or brother* or spous* or partner* or carer* or caregiver*).tw,kw.	2012389
11	or/7-10	2111072
12	social support/ or social isolation/ or loneliness/ or social alienation/ or social marginalization/ or social support/ or psychosocial support systems/ or social skills/	78627
13	mental health/ or personal autonomy/ or resilience, psychological/	48475
14	Stress, Psychological/	106425
15	Compassion Fatigue/	124
16	(social* or psychosocial* or mental health* or well-being* or "well being" or resilienc* or stress* or physical injur*).tw,kw.	1279317
17	or/12-16	1362592
18	6 and 11 and 17	2020
19	limit 18 to english language	1958
20	(note or editorial or comment or letter).pt.	1603290

21	19 not 20	1938
22	limit 21 to humans	1756
23	limit 22 to yr="2010 -Current"	954

2.2 EMCARE SEARCH

#	Searches	Results
1	veteran/ or veterans health/	11072
2	military family/	83
3	soldier/	8006
4	(veteran* or reservist* or home guard*).tw,kw.	14141
5	or/1-4	20804
6	family/	15381
7	adult child/	2071
8	parent/ or father/ or mother/ or single parent/	97993
9	sibling/	8712
10	spouse/	7518
11	human relation/	19102
12	(family* or children* or sibling* or parent* or sister* or brother* or spous* or partner* or carer* or caregiver*).tw,kw.	579083
13	or/6-12	617149
14	social support/	36589
15	social isolation/	6520
16	loneliness/	3672
17	social exclusion/	791

18	social adaptation/	7492
19	mental health/	67621
20	personal autonomy/	1401
21	coping behavior/	32861
22	mental stress/	12871
23	compassion fatigue/	157
24	(social* or psychosocial* or mental health* or well-being* or "well being" or resilienc* or stress* or physical injur*).tw,kw.	491101
25	or/14-24	535477
26	5 and 13 and 25	1122
27	limit 26 to english language	1094
28	(note or editorial or comment or letter).pt.	719787
29	27 not 28	1081
30	limit 29 to (human and yr="2010 -Current")	634

2.3 PSYCINFO SEARCH

#	Searches	Results
1	military veterans/ or military personnel/	19600
2	(veteran* or reservist* or home guard*).ti,ab,id.	18319
3	or/1-2	27170
4	family/	42468
5	adult offspring/	4016
6	parents/ or fathers/ or single parents/ or spouses/ or mothers/	87014
7	siblings/	6109

8	interpersonal relationships/	15780
9	(family* or children* or sibling* or parent* or sister* or brother* or spous* or partner* or carer* or caregiver*).ti,ab,id.	866210
10	or/4-9	892243
11	social support/	31895
12	loneliness/	3683
13	Social Isolation/ or Alienation/	8608
14	marginalization/	1794
15	social skills/	12969
16	mental health/	53694
17	autonomy/ or "independence (personality)"/	8241
18	"resilience (psychological)"/	10389
19	Psychological Stress/	8347
20	compassion fatigue/	360
21	(social* or psychosocial* or mental health* or well-being* or "well being" or resilienc* or stress* or physical injur*).ti,ab,id.	1069255
22	or/11-21	1089186
23	3 and 10 and 22	2549
24	limit 23 to english language	2488
25	(comment* or editorial or erratum* or letter or review*).dt.	313863
26	24 not 25	2310
27	limit 26 to (human and yr="2010 -Current")	1294

2.4 PROQUEST (HEALTH & MEDICINE, SOCIAL SCIENCES COLLECTION) SEARCH

(veteran* or reservist* or home guard*)

AND

(family* or children* or sibling* or parent* or sister* or brother* or spous* or partner* or carer* or caregiver*)

AND

(social* or psychosocial* or mental health* or well-being* or "well being" or resilienc* or stress* or physical injur*)

This search yielded 1100 citations for further consideration.

Appendix 3: Table of Included Articles

First Author (Year)	Study Type/ NHMRC Evidence Level/ Quality of Evidence	Intervention/ Focus of the study	Country Population(s)/ Setting	Number of Participants/ Method of recruitment	Main Findings/ Recommendations	Limitations
Albright (2012)	RCT Level 1c (of Levels of Evidence for Effectiveness) Quality: Fair	“Family of Heroes” An online avatar-based post-deployment stress and resiliency training simulation	USA Family member, partner or friend of a veteran who has returned from deployment within the past 4 years and is not currently receiving mental health treatment from the VA	Ninety-four (N=94) participants (from 27 states); Recruited from online advertisements	The experimental group exhibited significantly greater changes in its preparedness and likelihood to recognize signs of post-deployment stress and in approaching their veteran to discuss their concern and motivate them to seek help at the VA. This group also reported significant change in actual behaviour in terms of discussing their concern with their veteran (79% approached to discuss vs. 56% for the control group). Finally, seven (22%) of the veterans who were approached by the experimental group started to receive mental health treatment (five at the VA). All seven were previously diagnosed with PTSD and/or depression but never before started treatment at the VA	1. The possibility of a self-selection bias 2. Short follow-up period (1 month) 3. Scales used in the study have not been validated
Biesen (2013)	Cross-Sectional Study Level 4b (of Levels of Evidence for Effectiveness) Quality: Good	Couples’ therapy Investigated the effect of couples’ agreement about the relationship problems at therapy intake on subsequent treatment engagement and success	USA Couples where at least one partner is a veteran	147 heterosexual couples who sought therapy at two Veterans Administration Medical Centres (San Diego and Charleston) and returned their pre-treatment assessment packet. Couples received one of two types of treatment: 1. Shorter, problem-focused therapy;	Pre-treatment agreement on relationship problems was unrelated to treatment course or outcomes when the therapy was longer and more integrative in nature. However, when couples received a brief, problem-focused treatment, agreement predicted greater engagement in therapy process and more positive treatment outcomes. Results suggest that therapists and researchers should consider assessing agreement on relationship problems at the beginning of treatment and potentially suggest that couples who perceive their relationship differently should receive more integrative treatment.	Does not examine the effect of therapy, but rather the differences in outcome based on the extent to which the couple agree on the relationship problems when entering treatment

				2. Longer, integrative therapy		
Blount (2015)	Case Study Level 4d (of Levels of Evidence for Effectiveness) Quality: Good	Couples' therapy (Cognitive-Behavioural Conjoint Therapy; CBCT for PTSD) Illustrates the application of CBCT for PSTD therapy through a case study of a recently returned veteran with combat-related PTSD and his wife.	USA A couple receiving CBCT treatment	One couple No information on recruitment	The case study demonstrates the utility of a conjoint approach to treating PTSD that simultaneously targets PTSD symptoms, maladaptive cognitions held by either member of a couple, and maladaptive relationship processes, such as couple-level of avoidance of situations, places, people, and feelings that are associated with discomfort for the identified patient and can affect relationship satisfaction.	Study design (case study)
Church (2014)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Fair	Couples' therapy Studied the effect of CAM techniques and Energy Psychology applied on a couples' retreat would provide clinical benefits to veterans and spouses (PTSD symptoms using the PCL checklist)	USA Couples attending one of six week-long retreats	218 (109 veterans and their spouses) 63 completed the follow-up reunion assessment Participants were recruited using convenience sampling of 219 veterans and spouses attending one of six retreats	Mean post- test PCL scores decreased to 41.8 (SE ± 1.2; p < .001) for veterans, with 28% (of the original 83%) still clinical. Spouses demonstrated substantial symptom reductions (M = 28.7, SE ± 1.0; p < .001), with 4% (of 29%) still clinical. A follow-up assessment (n = 63) found PTSD symptom levels dropping even further for spouses (p < .003), whereas gains were maintained for veterans. The significant reduction in PTSD symptoms is consistent with other published reports of EP treatment, though counter to the usual long-term course of the condition. The results indicate that a multimodal CAM intervention incorporating EP may offer benefits to family members as well as veterans suffering from PTSD symptoms	A variety of CAM techniques were available to participants so it's difficult to determine the relationship between intervention and outcome No controls for comparison Only a small sample completed the follow-up assessment at the reunion (less than 30% of the original sample)
Davis (2012)	Cross-Sectional Study	Couples' therapy Weekend couples' retreat	USA Couples attending a weekend retreat	43 couples (one couple was composed of two veterans so the number of veterans was 44)	Results of the program evaluation suggest that such a retreat is well received and may benefit both veterans and their partners in areas such as communication and stress, of which the most frequently mentioned stressor was relationships. Participants indicated a high level of satisfaction with the retreat. The match between reasons	The study assessed participants' perceptions of the retreat using questionnaires designed specifically for the study

	Level 4b (of Levels of Evidence for Effectiveness) Quality: Poor			attending a weekend couples reunification retreat	participants gave for attending the retreat and what they identified as most positive about the retreat revealed a good fit between their perceived needs and the retreat programming	Small sample size No controls for comparison
Dixon (2014)	RCT Level 1c (of Levels of Evidence for Effectiveness) Quality: Fair	Program to encourage family involvement in care (REORDER) This study compared REORDER to enhanced treatment as usual in a randomized design.	USA Veterans with SMI whose relative had low rates of contact with treatment staff at two Veterans Integrated Service Networks	226 veterans with serious mental illness whose relatives had low rates of contact with treatment staff 111 participants were randomly assigned to REORDER, and 115 were randomly assigned to enhanced treatment as usual (usual care enhanced by written information about the availability of family support services in the VA and surrounding community) Recruited from outpatient mental health programs at three large medical centers in two Veterans Integrated Service Networks	This study compared REORDER to enhanced treatment as usual in a randomized design. Participants were not committed to family involvement in their care at study enrolment, but 85% of veterans assigned to REORDER participated in at least one session, and 50% of those veterans had a REORDER family session. REORDER participants showed statistically significant improvement in the overcoming stuckness subscale of the MHRM (including concepts such as asking for help when not feeling well and taking risks to enhance recovery), which are logical consequences of the REORDER intervention. REORDER participation was also associated with reduced paranoid ideation. The intervention had a robust impact on family involvement in care (through both REORDER and non-REORDER services), leading to a fourfold increase over the six-month study period (52% vs. 13%).	Short duration (6 months)

<p>Doss (2011)</p>	<p>Cross-Sectional Study</p> <p>Level 4b (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Couples' therapy</p> <p>Focus was on Sudden Gains in relationship satisfaction</p>	<p>USA</p> <p>Veterans and their spouses attending couples' therapy at a Veteran Affairs Medical Center (VAMC)</p>	<p>67 couples (134 individuals)</p> <p>Subset of participants in a larger study</p> <p>All heterosexual couples presenting for couples and family specialty clinics at two VAMCs over a 42- month period that were deemed appropriate for couple therapy by clinic staff were provided information about the study</p>	<p>25% of individuals experienced a Sudden Gains (SG) in relationship satisfaction. The magnitude of these SGs was large ($d=1.62$) and fully explained the total pre-post change for individuals who experienced them.</p> <p>Individuals with SGs showed significantly greater satisfaction gains during therapy; however SGs were not related to relationship satisfaction or relationship status at 18-month follow-up.</p> <p>SGs were predicted by the content of the previous session, putative change mechanisms of communication, intimacy, and behaviour, as well as the partner's SGs during the same period.</p> <p>Results suggest that SGs are an important component of change during couple therapy for some individuals, challenging the assumption of continuous change in previous studies</p>	<p>Different treatment approaches at the two sites</p> <p>Small sample size</p> <p>No controls for comparison</p>
<p>Doss (2012)</p>	<p>Before-After Study</p> <p>Level 2d (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Couples' therapy</p> <p>Measured relationship satisfaction using the Quality Marriage Index as the primary outcome measure</p>	<p>USA</p> <p>Veterans and their spouses attending couples' therapy at a Veteran Affairs Medical Center (VAMC)</p>	<p>177 heterosexual couples (354 individuals)</p> <p>All heterosexual couples presenting for couples and family specialty clinics at two VAMCs over a 42- month period that were deemed appropriate for couple therapy by clinic staff were provided information about the study</p>	<p>The average couple showed significant gains in relationship satisfaction during treatment; gains were larger for couples beginning therapy in the distressed range than for couples in the non-distressed range.</p> <p>Rates of premature termination were high, with 19% of couples completing fewer than three sessions and 62% rated as not completing a "full course" of therapy.</p> <p>Benchmarking analyses demonstrated that the average gains were larger than would be expected from natural remission and similar to previous effectiveness trials; however, average gains were smaller than those observed in couple therapy efficacy trials.</p> <p>Relationship, psychological, and demographic characteristics were generally unrelated to the amount of change in therapy after controlling for initial satisfaction</p>	<p>Different treatment approaches at the two sites</p> <p>Small sample size</p> <p>No controls for comparison</p> <p>Information on combat status was not collected but the median age of participants suggests that OEF/OIF veterans probably comprised the minority of couples. Thus, the results should be generalized to</p>

						OEF/OIF veterans with caution
Fischer (2013)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Good	Multifamily therapy for veterans with PTSD and their family member (REACH) Examined the impact of participation in REACH on targeted knowledge and skills, relationship distress/satisfaction, social support, symptom status, quality of life and service utilisation	USA Veterans with PTSD	One hundred veterans with PTSD and 96 family members who participated in the 9-month, 3-phase clinical program between 2006 and 2010 also participated in this longitudinal evaluation	Veterans showed significant improvements over time on all measures (empowerment, family problem solving and communication, relationship satisfaction, social support, symptom status, knowledge of PTSD, self-efficacy in coping with PTSD, and quality of life). Family members showed similar statistically significant improvements on most measures. Changes over time in individual participants' relationship satisfaction, social support, symptom status, and quality of life were attributable to changes in program-targeted knowledge and skills. Study results suggest that multifamily group psychoeducation is useful in treatment of PTSD, leading to increases in targeted PTSD knowledge and skills, as well as improving family functioning and symptom status for both veterans and family members.	No controls for comparison Single-site study with a sample of primarily Vietnam, Persian Gulf, and earlier service-era veterans so outcomes may not generalize to veterans with more recent-onset PTSD, such as those returning from current conflicts in Iraq and Afghanistan. Arguably, however, families just beginning to deal with the veteran's PTSD may reap even greater benefits from early participation in a program like REACH
Fredman (2011)	Case Study Level 4d (of Levels of Evidence for Effectiveness) Quality: Good	Couples' therapy (Cognitive-Behavioural Conjoint Therapy; CBCT for PTSD)	USA A couple receiving CBCT treatment	One couple No information on recruitment provided	Post-treatment evaluation indicated that there had been notable gains in Martin's PTSD symptoms and relationship adjustment over the course of therapy. He no longer met diagnostic criteria for PTSD according to clinician evaluation, and his 15-point decrease on the PCL and 30-point decrease on Sue's PCL-P were also consistent with clinically significant improvement in PTSD symptoms. Overall relationship adjustment also improved for both members of the couple. Martin's scores on the Trait Anger subscale of the State Trait Anger Expression Inventory indicated improvement in this domain as well. Scores on the Social Adjustment Scale and State Trait Anxiety Inventory were unchanged for both partners, likely due to high levels of functioning and low levels of anxiety at both time points	Study design (case study)
Gioia (2014)	Qualitative	Program to encourage family involvement in	USA	20 veterans	The qualitative themes support the willingness of the interviewed veterans who have previously not included family members to situate themselves at the centre of their	Participants self-selected

	Level 3 (of Levels of Evidence for Meaningfulness) Quality: Good	care (REORDER) Qualitative sub-study looking at veterans' views of the process	Veterans participating in the REORDER RCT	Recruited from participants in the REORDER RCT (from only one of the two locations)	care and deliberate through facilitated conversation, the pros and cons of involving family.	Only included those who did involve their family Qualitative study – results are not generalisable
Hayes (2015)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Good	Dyadic group intervention to prevent relational aggression Strength at Home Friends and Families (SAH-F) Effectiveness study of change in relational aggression and function, depressive symptoms and PTSD symptoms	USA Veterans and their loved ones	70 veterans and their loved ones Recruited through promotional materials and direct referrals from community veterans' organisations, as well as the local VA hospital and Vet Center	Significant reductions in psychological aggression were seen, both at program completion and at 3-months follow-up, for veterans and for significant others Perpetration of physical aggression remained low after pre-treatment and did not increase Relationship adjustment reported by significant others (but not veterans) indicated a significant improvement Significant decreases in depressive symptoms were observed for veterans and significant others Significant decreases in PTSD symptoms were observed for veterans and significant others	63% completed the program Only 57% provided data for the final follow-up assessment No controls for comparison
Interian (2016)	RCT Level 1c (of Levels of Evidence for Effectiveness) Quality: Good	Brief Internet-based intervention providing Veterans' families with psycho-education on post-deployment readjustment Family of Heroes	USA OIF/OEF Veterans with probable PTSD and their families	103 dyads (veterans with probable PTSD and a designated family member / partner) Participants were recruited from the VA New Jersey Health Care System using VA administrative data to identify a pool of Veterans who	Veterans in the intervention group reported decreases in their family member's reactivity to criticism but also decreased perceived family support. No significant differences were observed in outcomes (perceived empowerment, efficacy to provide support and communication) reported by family members. The authors suggest the need for greater intervention intensity	Small sample size

				either screened positive for PTSD or had a PTSD diagnosis assigned		
Kahn (2016)	RCT Level 1c (of Levels of Evidence for Effectiveness) Quality: Good	Web-based, self-directed program of instruction in mind- and body-based wellness skills (Mission Reconnect) Examined the effect on mental health and wellness outcomes associated with post-deployment readjustment	USA Global War on Terror veterans and their significant relationship partners	160 veteran-partner dyads Recruited through publicity by the Iraq and Afghanistan Veterans of America to its membership Dyads randomly allocated to 1 of 4 study arms: Mission Reconnect (MR) program alone, MR plus the Prevention and Relationship Enhancement Program (PREP) for Strong Bonds weekend program for military couples, PREP alone, and waitlist control	Participants provided weekly reports on frequency and duration of self-care practices for the first 8 weeks, and at 16 weeks During the first 8-week reporting period, veterans and partners assigned to MR arms used some aspect of the program a mean of 20 times per week, totalling nearly 2.5 hours per week, with only modest declines in use at 16 weeks. Significant improvements were seen at 8 and 16 weeks in measures of PTSD, depression, sleep quality, perceived stress, resilience, self-compassion, and pain for participants assigned to MR arms. Significant reductions in self-reported levels of pain, tension, irritability, anxiety, and depression were associated with use of partner massage	
Klich (2016)	Case Study Level 4d (of Levels of Evidence for Effectiveness) Quality: Fair	Involving family in therapy Compassion-based strategies within mindfulness-based	USA A couple (veteran and spouse)	One couple No recruitment information provided	Benefits reported by the patient and observed in clinical treatment included: 1. Greater comfort and less hyper-alertness in group settings attributed to self-regulation training. 2. Being able to create homeostasis in his body, which he describes as feeling balanced. Being able to notice when he begins to feel arousal, and then to address it.	Study design (case study)

		biofeedback treatment			<p>3. A greater chance of an improved physical and emotional outcome both for himself and others.</p> <p>4. Reduction in escalation of anger, fear, and overall intensity in emotional dysregulation and reduced self-deprecation.</p> <p>5. Awareness that loving-kindness exercises were instrumental in teaching reduction in self-judgment as well as judgment towards others, and overall increased tolerance to differences in opinions.</p> <p>6. Reduction in pain and increased tolerance for emotional and physical discomfort.</p> <p>7. Planning for and setting boundaries between the patient and his spouse for self-care, which resulted in reduced reactivity towards each other's mood fluctuations.</p>	
Luedtke (2015)	<p>Case Study</p> <p>Level 4d (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Mindfulness-based CBCT for PTSD</p> <p>Mindfulness interventions were integrated into the existing CBCT for PTSD protocol and treatment duration was shortened by including a weekend group retreat for couples</p>	<p>USA</p> <p>OIF Veteran and his wife</p>	<p>One couple</p> <p>Participants in a research study to develop and evaluate MB-CBCT</p>	<p>Baseline and post-treatment data from self- and partner-report measures demonstrates symptom reduction in posttraumatic stress symptoms as well as an increase in relationship satisfaction</p>	Study design (case study)
McDevitt-Murphy (2011)	<p>Case Study</p> <p>Level 4d (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Significant Other Enhanced Cognitive-Behavioural Therapy for PTSD and Alcohol Misuse in OEF/OIF Veterans</p>	<p>USA</p> <p>OEF/OIF Veterans and their spouses</p>	<p>Two couples (4 individuals)</p> <p>Participants in Project VALOR (an open trial conducted at a VA Medical Center)</p>	<p>The participants made drastic reductions in their alcohol use at the start of treatment or shortly before entering the study, but both still reported that they found the material focused on alcohol misuse helpful</p> <p>Both demonstrated sustained abstinence from alcohol, suggesting that perhaps the skills were helpful for establishing new habits</p>	Study design (case study)

					Both veterans also demonstrated substantial decreases in PTSD symptoms	
Monk (2016)	<p>Before-After Study</p> <p>Level 2d (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Couples' therapy (Veteran Couples Integrative Retreat; VCIIR)</p> <p>Evaluation of a brief couples retreat model program aimed at reducing distress for veterans and their partners</p>	<p>USA</p> <p>Veterans and their partners</p>	<p>149 couples (298 individuals)</p> <p>In order to be eligible, participants were required to have either a pre-diagnosis of PTSD or a referral from a provider for displaying symptoms of PTSD. Those without a formal diagnosis were admitted on a case-by-case basis if they were still living with the symptoms and reactivity from their war experiences.</p> <p>Data were collected over the course of 12 months in 2011–2012, including eight retreats and one reunion event.</p>	<p>Results showed that trauma symptoms were significantly reduced for veterans, and partners reported a decrease in distress after the intervention.</p> <p>Although the magnitude of this effect diminished over time, there was evidence of long-term treatment effects at a 6-month follow-up</p>	<p>No controls for comparison</p> <p>There was attrition at the 6-month follow-up, which could represent a self-selection bias at the third time point</p>
Monk (2017)	<p>Before-After Study</p> <p>Level 2d (of Levels of Evidence for Effectiveness)</p>	<p>Couples' therapy (modified IIR approach)</p> <p>4-day intensive integrative retreat</p>	<p>USA</p> <p>Veterans and their partners</p>	<p>76 dyads (N = 152)</p>	<p>Participants reported a reduction in trauma symptoms, but only support persons experienced a significant increase in posttraumatic growth from pretest to posttest</p> <p>Both veterans and their romantic partners reported an increase in relationship adjustment after the retreat</p>	<p>No controls for comparison</p>

	Quality: Good					
Moriarty (2016)	RCT Level 1c (of Levels of Evidence for Effectiveness) Quality: Good	The Veterans' In-home Program (VIP) targeting veterans' environment, delivered in veterans' homes, and involving their families To determine whether the VIP is more effective than standard outpatient clinic care in improving family members' well-being in 3 domains (depressive symptoms, burden, and satisfaction) and to assess its acceptability to family members	USA Veterans with TBI and their families	81 dyads (veteran/family member) were randomly assigned to VIP or an enhanced usual care control condition Recruited from a Veterans Affairs (VA) polytrauma program	Family members in the VIP showed significantly lower depressive symptom scores and lower burden scores when compared to controls at follow-up Satisfaction with caregiving did not differ between groups Family members' acceptance of the intervention was high	No impact on veteran reported
O'Donnell (2013)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Good	Veterans and Veterans Families Counselling Service (VVCS) Explored the impact of center-based psychological counseling on depression, anxiety, stress,	Australia Veterans and their family	312 veterans and their family Participants met entry criteria for this study if they presented to VVCS with moderate-to-severe symptoms of depression or anxiety, or alcohol misuse, and if they	VVCS center-based counseling resulted in a significant reduction in depression, anxiety, stress, and alcohol use severity after five sessions, and these improvements were maintained over the next 12 months. Despite these improvements, however, participants continued to report moderate-to-severe levels of mental health problems. VVCS center-based counseling successfully reduced depression, anxiety, stress, and alcohol use symptom severity of veterans and their families. However, the clinical profiles of this population are often complex and	No information on the therapeutic approach used

		and alcohol use severity		completed at least five sessions of VVCS center-based counseling	challenges remain in terms of addressing the mental health needs of this group.	
Perlick (2013)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Fair	Multifamily Group Treatment for TBI Evaluated the initial efficacy and feasibility of implementing the program	USA OEF/OIF veterans with TBI and their families	14 dyads (11 veterans and 9 family members completed treatment) Enrollment was limited to consenting veterans with a clinical diagnosis of TBI sustained during the OEF/OIF era, a family member or partner consenting to participate, and a score \geq 20 on the Mini-Mental State Examination	Treatment was associated with decreased veteran anger expression and increased social support and occupational activity Caregivers reported decreased burden and increased empowerment	Small sample size Follow-up was immediately after treatment
Sautter (2014)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Good	Couple-based therapy for PTSD; Structured Approach Therapy (SAT) Pilot study of the efficacy of SAT in reducing post-traumatic and relationship distress	USA OIF veterans and their spouses	7 male veterans and their female spouses Participants were referred to the Southeast Louisiana Veterans Health Care System (SLVHCS) Family Mental Health Program for deployment-related marital and other family readjustment problems	Veterans showed significant reductions in both self- and clinician-related PTSD (extremely high magnitude of change in posttraumatic stress). A significant decrease in spousal anxiety, with a trend towards a significant decrease in spousal depression, was reported. Analyses of reliable change on the individual level indicated that 4 of 5 veterans and 3 of 4 spouses with dyadic adjustment scores in the distressed range prior to treatment showed reliable decreases in distress over the course of SAT placing them in the non-distressed range at post-treatment.	Pilot study so results are preliminary Sample size No control for comparison

					Five of 7 spouses showed reliable decreases in depression, and 4 of 7 spouses showed reliable decreases in anxiety over the course of treatment with SAT	
Sautter (2015)	RCT Level Ic (of Levels of Evidence for Effectiveness) Quality: Good	Couple-based therapy for PTSD; Structured Approach Therapy (SAT) Evaluated the efficacy of SAT in reducing PTSD	USA OIF/OIF veterans and their cohabiting partners	57 veterans and their partners Participants were OIF/OIF veterans with PTSD who had been cohabiting with opposite-sex intimate partner for at least 6 consecutive months Randomised to SAT or PFE (12-session couples-based educational intervention (PTSD Family Education))	Findings from an intent-to-treat analysis revealed that veterans receiving SAT showed significantly greater reductions in self-rated and Clinician-Administered PTSD Scale (CAPS)-rated PTSD through the 3-month follow-up compared with veterans receiving PFE 15 of 29 (52%) veterans receiving SAT and 2 of 28 (7%) receiving PFE no longer met DSM-IV-TR criteria for PTSD. SAT was associated with significant improvements in veteran relationship adjustment, attachment avoidance, and state anxiety Partners showed significant reductions in attachment anxiety	Small sample size
Sautter (2016)	RCT Level Ic (of Levels of Evidence for Effectiveness) Quality: Good	Couple-based therapy for PTSD; Structured Approach Therapy (SAT) Supplemental follow-up and mediation analyses of the previous RCT, testing the hypothesis that changes in emotion functioning play a significant role	USA OEF/OIF veterans and their cohabiting partners	57 veterans and their partners Participants were OEF/OIF veterans with PTSD who had been cohabiting with opposite-sex intimate partner for at least 6 consecutive months Randomised to SAT (29 veteran dyads) or PFE (28 dyads; 12-session	Veterans assigned to the SAT condition showed significantly greater decreases than those assigned to PTSD family education in emotion regulation problems and fear of intense Decreases in both emotion regulation problems, and fear of intense emotions were found to be complementary mediators of reductions in PTSD symptoms greater with SAT These findings suggest that SAT may aid veterans in improving their ability to regulate trauma-related emotions	Small sample size

		in the decreases in PTSD symptoms primarily observed in veterans who had received SAT		couples-based educational intervention (PTSD Family Education)		
Schumm (2013)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Fair	Cognitive-Behavioural Conjoint Therapy for PTSD	USA OEF/OIF veterans and their partners	6 male veterans and their female relationship partners Participants were referred to the program	Case- and group-level data supported reductions in Veterans' PTSD symptoms and female partners' relationship distress. These findings suggest that CBCT for PTSD may be a promising intervention for OEF-OIF Veterans' PTSD and their partners	Small sample size No control for comparison No female veterans
Schumm (2015)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Fair	Couple treatment for alcohol use disorder and PTSD (CTAP; integrating behavioural couples therapy for alcohol use disorder (AUD) with cognitive-behavioural conjoint therapy for PTSD	USA Veterans and their partners	13 male veterans and their female partners Participants were veterans with PTSD and AUD participating in CTAP	There were 8 veterans who showed clinically reliable pre- to post-treatment reduction of PTSD outcomes. There were also significant group-level reductions in clinician-, veteran-, and partner-rated PTSD symptoms Most veterans showed clinically reliable reductions in percentage days of heavy drinking. Group-level reduction in veterans' percentage days of heavy drinking was significant There were 4 veterans and 3 partners with clinically reliable reductions in depression, and group-level change was significant for veterans and partners On relationship satisfaction, 3 veterans and 4 partners had reliable improvements, and 2 veterans and 1 partner had reliable deterioration. Group-level findings were non-significant for veteran relationship satisfaction and for partners	High rate of attrition (of 13 veterans and their partners, 9 couples completed the study and 7 completed 12 or more sessions) No control for comparison No female veterans

					These findings indicate that CTAP may be a promising intervention for individuals with comorbid PTSD and AUD who have relationship partners	
Sensiba (2015)	Literature Review Quality: Fair	Family interventions for PTSD	- Veterans and their families	Reviews six family interventions that are currently being practiced and have also been studied with military families	<p>Cognitive Behavioural Conjoint Therapy – studies provide support for the effectiveness of this model for improving PTSD and depressive symptoms and improvements in intimate relationships</p> <p>Integrative Couples Therapy – the approach has yielded better results than traditional behavioural couples therapy</p> <p>Strategic Approach Therapy – limited research but shows promise</p> <p>Family Systems Therapy – one study has been conducted with positive results for improvement in the family system</p> <p>Multifamily Group Psychoeducation - favorable reaction was received during initial pilot projects of REACH, and a longitudinal evaluation from 2006 to 2010, resulting in better understanding of PTSD, decrease in PTSD symptoms, and improvement in family functioning</p> <p>Parent Management Training – has been studied in civilian populations with recommendations for how it could be translated to military populations</p>	Not a systematic review
Sherman (2015)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness) Quality: Good	Multifamily group therapy for veterans living with mood disorders (REACH; Reaching out to Educate and Assist Caring, Healthy Families)	USA Veterans with a primary diagnosis of major depression or bipolar disorder and their family members	<p>101 male veterans (74 with major depression and 27 with bipolar disorder) and their family members</p> <p>Participants were recruited from the REACH program. To be eligible for REACH, a veteran with a primary</p>	<p>Both veterans and family members showed improvements in their knowledge about mood disorders, understanding of positive strategies for dealing with situations commonly confronted in mood disorders, and family coping strategies</p> <p>Veterans also evidenced improvement in family communication and problem-solving behaviours, empowerment, perceived social support, psychiatric symptoms, and overall quality of life</p> <p>The REACH intervention holds promise as a feasible, acceptable, and effective treatment for veterans living with</p>	<p>No control for comparison</p> <p>No female veterans</p>

		Evaluated the treatment modality		diagnosis of major depression or bipolar disorder must be currently enrolled at the Oklahoma City VA Medical Center (VAMC), live within 90 miles of the VAMC, and have an adult family member or friend willing to participate in REACH with him/her.	mood disorders and their families. Further study is warranted	
Scones (2015)	RCT Level Ic (of Levels of Evidence for Effectiveness) Quality: Fair	Educational Group Therapy Program for Female Partners of Veterans Diagnosed With PTSD Evaluated a 10-week group therapy protocol aimed to increase partners' PTSD knowledge, self care, and relationship-focused skills to improve both the psychological health of the female partner and overall relationship functioning & satisfaction	USA Female partners of veterans diagnosed with PTSD	23 female partners (randomised to either intervention group or waitlist control) Women were recruited from a large urban VA hospital via flyer-based advertisement and provider referrals	The female partners participating in the intervention reported a significant decrease in their own psychological distress from pre- to post-treatment, whereas the waitlist control group showed no significant change Participants who completed the intervention found it to be beneficial, and the women provided useful feedback to help improve future iterations of the treatment No significant differences were found on changes in relationship functioning	Small sample size No male partners included No changes in relationship functioning were reported

<p>Straits-Troster (2013)</p>	<p>Qualitative</p> <p>Level 3 (of Levels of Evidence for Meaningfulness)</p> <p>Quality: Good</p>	<p>Multifamily group treatment for traumatic brain injury (TBI)</p> <p>Evaluated the feasibility, acceptability, and helpfulness of the program</p>	<p>USA</p> <p>Veterans with TBI and their family members</p>	<p>8 veterans and 8 family members</p> <p>Participants in the trial (August 2010– March 2011) of multifamily psychoeducation for TBI at two Veterans Affairs medical centers</p>	<p>Five themes:</p> <ol style="list-style-type: none"> 1. Exploring common struggles and reducing isolation 2. Building skills to cope with TBI and related problems 3. Restoring relationships through communication and understanding 4. Increasing understanding of the interconnection between TBI and posttraumatic stress disorder 5. Improving the multifamily group experience and increasing treatment engagement of veterans and families <p>Veterans and family members found multifamily group treatment for TBI highly acceptable and offered recommendations to improve and increase access to the program</p>	<p>Qualitative study – results are not generalisable</p>
<p>Taft (2016)</p>	<p>RCT</p> <p>Level Ic (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Strength at Home Couples Program to Prevent Military Partner Violence</p>	<p>USA</p> <p>Male service members or veterans and their female partners</p>	<p>69 male service members or veterans and their female partners (randomised by cohort to a supportive prevention couples group or Strength at Home Couples)</p> <p>Recruited from 2 Department of Veterans Affairs hospitals by clinician referral self-referral via flyers hung in area Veterans Affairs (VA) hospitals and community locations, and presentations at</p>	<p>Both service members or veterans and their female partners engaged in fewer acts of reported physical and psychological IPV in the Strength at Home Couples condition relative to supportive prevention, and relative risk of physical violence was lower for both members of the dyad in Strength at Home Couples at follow-up assessments</p> <p>Those in Strength at Home Couples evidenced significantly greater program completion than did those in supportive prevention</p> <p>Exploratory analyses did not find differences between groups on relationship satisfaction</p>	<p>Relatively small sample size and effect sizes</p>

				<p>events for military service member organizations such as Yellow Ribbon and Strong Bonds</p> <p>All couples completed an initial assessment including diagnostic interviews and measures of physical and psychological IPV</p>		
Walker (2014)	<p>RCT</p> <p>Level Ic (of Levels of Evidence for Effectiveness)</p> <p>Quality: Good</p>	<p>Sesame Workshop multimedia kit called: Talk, Listen, Connect: Changes (TLC-II(C)) for helping caregivers to assist young children to adjust to a parent's injury</p> <p>Evaluation of caregiver and child outcomes, reductions in perceptions of disruptions in the home and impact on the family</p>	<p>USA</p> <p>Families with children aged 2-8 years</p>	<p>153 families</p> <p>Test group families received the TLC-II(C) kit;</p> <p>Control group families received the Healthy Habits for Life (HHL) kit, which focused on habits for healthy living</p> <p>Participants were recruited through flyers posted at or near Veterans Administration polytrauma centers, websites, contacts made at military and veteran events, market research databases, and invitations to military and veteran families as</p>	<p>All materials were well used and highly rated</p> <p>All caregivers reported less social isolation, less child aggression, and significantly less disruptive home environments after kit use</p> <p>Test group caregivers reported significantly greater reductions in depressive symptoms and significant increases in children's social competence over time in comparison to the control group</p>	<p>The volunteer sample was small and recruited using nonprobability methods. While diverse, we cannot assume it was representative.</p> <p>All data were reported by caregivers, making it impossible to disentangle children's actual behavior from caregivers' perceptions of it.</p> <p>As both groups received interventions, albeit with different goals, in the absence of a "no-kit" group we cannot rule out regression to the mean</p> <p>While the study employed a randomized design, data were collected only twice, and only four weeks apart.</p>

				they shopped at malls in communities with large military or veteran populations		We do not know whether the positive changes would erode, persist, or strengthen over time
Winter (2016)	RCT Level Ic (of Levels of Evidence for Effectiveness) Quality: Good	Home-based, family inclusive intervention for veterans with TBI (Veterans' In-home Programme; VIP) VIP's efficacy was evaluated using measures of community re-integration, target outcomes reflecting veterans' self-identified problems and self-rated functional competence	USA Veterans with TBI and their family members	81 veterans with TBI at a VA polytrauma programme and a key family member (Control-group participants received usual-care enhanced by two attention-control telephone calls)	At follow-up, VIP participants had significantly higher community re-integration scores and less difficulty managing targeted outcomes, compared to controls Self-rated functional competence did not differ between groups. In addition, VIP's acceptability was high	The sample was limited to veterans diagnosed and offered services within a VA medical rehabilitation service

Appendix 4: Reference list of included articles

- Albright, G., Goldman, R., Shockley, K.M., McDevitt, F. & Akabas, S. (2012). Using an avatar-based simulation to train families to motivate veterans with post-deployment stress to seek help at the VA. *Games for Health*, 1(1), pp. 21-28.
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Appendix 5: Literature Relating to Vocational and Educational Interventions

First Author (Year)	Study Type/ NHMRC Evidence Level/ Quality of Evidence	Intervention/ Focus of the study	Country Population(s)/ Setting	Number of Participants/ Method of recruitment	Main Findings/ Recommendations	Limitations
Davis (2012)	RCT Level Ic (of Levels of Evidence for Effectiveness)	Individual Placement and Support (IPS) supported employment	USA Unemployed veterans with PTSD	Unemployed veterans with PTSD were randomly assigned to either individual placement and support (IPS) supported employment (N=42) or a Veterans Health Administration Vocational Rehabilitation Program (VRP) treatment as usual (N=43)	Veterans with PTSD who received IPS were 2.7 times more likely to gain competitive employment than those who received VRP During the 12-month study, 76% of the IPS participants gained competitive employment, compared with 28% of the VRP participants Veterans assigned to IPS worked substantially more weeks than those assigned to VRP (42% versus 16% of the eligible weeks, respectively) and earned higher 12-month income during the 12-month period	
Davis (2014)	RCT Level Ic (of Levels of Evidence for Effectiveness)	Explored whether psychosocial challenges impact effects of vocational rehabilitation in Veterans with Posttraumatic Stress Disorder (PTSD)	USA Unemployed veterans with PTSD	Unemployed veterans with PTSD were randomly assigned to either individual placement and support (IPS) supported employment (N=42) or a Veterans Health Administration Vocational Rehabilitation Program (VRP) treatment as usual (N=43)	When examining groups within each moderator, there was a greater IPS supportive employment benefit in gaining competitive employment for those with inadequate transportation and inadequate housing compared with the main finding of the pilot study Compared with the main finding of the pilot study, there was no greater advantage of IPS for those with adequate transportation or adequate housing Compared with the main finding in the pilot study, those without a family care burden had a greater benefit from IPS and those with family care burden had a reduced treatment effect	Post hoc exploratory analysis of outcomes for an RCT
McCaslin (2013)	Editorial	Description of the San Francisco VA Medical	USA	-	There are tremendous advantages to providing mental health and social work services on college campuses.	Discussion paper – not a study

		<p>Center's (SFVAMC's)</p> <p>City College of San Francisco (CCSF) Veterans Outreach Program (VOP)</p> <p>Provides VHA services on the college campus, including VHA healthcare enrollment, education about VA resources, mental health treatment, social work services, and connections to additional supports and services not located on campus</p>			<p>Through this preventative model of care, services can be offered early after military service, fostering behaviors that can improve health outcomes, promote overall well-being and academic success, and reduce disability</p>	
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Appendix 6: Literature Relating to National Guard Populations

First Author (Year)	Study Type/ NHMRC Evidence Level/ Quality of Evidence	Intervention/ Focus of the study	Country Population(s)/ Setting	Number of Participants/ Method of recruitment	Main Findings/ Recommendations	Limitations
Casselman (2015)	Before-After Study Level 2d (of Levels of Evidence for Effectiveness)	Acceptance and Commitment Therapy (ACT) and parenting psycho-education for veterans with PTSD	USA National Guard veterans with PTSD	Seven male OIF/OEF veterans previously diagnosed with PTSD Recruited from an outpatient PTSD clinic at a large VA medical center	All participants had significant changes in positive parenting behaviors (i.e., increased parental acceptance/warmth and less aggression/hostility). Two participants had significant increases in parental satisfaction Two participants had significant increases in psychological flexibility. No participants had significant increases or decreases in PTSD symptoms. The participants identified positive aspects as mindfulness breathing, defusion techniques for anger, acceptance techniques for difficult internal experiences, and the psychoeducation topics. The participants identified negative aspects as short duration of sessions and therapy course (i.e., 8 weeks), a preference for morning session times over the afternoon session time, not enough time for discussion of psychoeducation topics at the beginning of therapy sessions, and a lack of in-depth discussion/psychoeducation topics on adolescent parenting	Small sample size
Collinge (2012)	Before-After Study	Integrated multimedia package of guided	USA	43 dyads	Significant improvements in standardised measures for post-traumatic stress disorder, depression, and	

	Level 2d (of Levels of Evidence for Effectiveness)	meditative, contemplative, and relaxation exercises (CD) and instruction in simple massage techniques (DVD) to promote stress reduction and interpersonal connectedness	National Guard personnel and significant partners	Recruited through presentations at postdeployment Yellow Ribbon events and through announcement in Family Support and Assistance Programs e-newsletters	self-compassion were seen in both veterans and partners; and in stress for partners Veterans reported significant reductions in ratings of physical pain, physical tension, irritability, anxiety/worry, and depression after massage, and longitudinal analysis suggested declining baseline levels of tension and irritability	
DeVoe (2016)	RCT Level 1c (of Levels of Evidence for Effectiveness)	Strong Families Strong Forces Parenting Program Parenting program developed specifically to support military families during reintegration	USA National Guard and Reserves members	115 service members with very young children were randomly assigned to receive either the Strong Families Strong Forces Parenting Program at baseline or after a 12-week waiting period Recruited primarily at Yellow Ribbon postmobilization events and briefings hosted by the Massachusetts and Rhode Island Yellow Ribbon organizations	Service member parents in Strong Families evidenced greater reductions in parenting stress and mental health distress relative to those in the waitlist comparison group Service members with more PTSD symptoms reported higher levels of perceived parental efficacy in the intervention group than service members in the comparison group Intervention also resulted in enhanced parental reflective capacity, including increased curiosity and interest in the young child among those in the intervention group relative to comparison	