



# UK Veterans Family Study

## Identifying the psychosocial determinants of psychological health and wellbeing of families of those who have served in the Armed Forces in the 5-Eyes Alliance:

### A Systematic Review



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# Foreword

Military service influences the family members of those who serve, creating short- and long-term direct and indirect impacts that shape family members as individuals and families as systems. Families in turn influence the service personnel. This bidirectional relationship has been increasingly recognized in policies and programming geared towards military families.



While research exploring the experiences of military families and the impacts of the military family lifestyle has increased over the past 20 years, gaps remain in our collective understanding of their needs and how to best support them. Families are more than a collection of individuals, are not homogenous or monolithic entities, and have a lifecourse that intersects dynamically with the family's journey through military service. To ensure that policies and programming are informed by the highest levels of evidence, synthesis of existing research is a critical foundation. Through rigorous synthesis, we can identify emergent patterns, themes, issues, and opportunities to better understand and support the families of those who have served. By looking to the research focused across the 5 Eyes Alliance, which includes Australia, Canada, New Zealand, the United Kingdom, and the United States, new clarity becomes possible.

Identifying the psychosocial determinants of psychological health and wellbeing of families of those who have served in the Armed Forces in the 5Eyes Alliance: A systematic review advances the field by consolidating and teasing apart what is known about how children, partners, and couples are affected by military service. Importantly, it reveals where there is a solid base of knowledge and also where there are important gaps in content and population. While the value of the work can already be seen in the UK Veterans Family Study where researchers are actively working to redress issues revealed through the systematic review, it will continue to shape future research questions across the 5-Eyes Alliance and beyond.

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# Forces In Mind Trust

Forces in Mind Trust was founded in 2011 with a £35 million endowment from the National Lottery Community Fund to improve transition to civilian life for Service leavers and their families.

Our mission is to enable successful and sustainable transition to civilian life, and the Trust's strategy is to provide an evidence base that will influence and underpin effective policy making and practice.

By funding high quality, credible research where there is an identified gap in relevant understanding, and by then exploiting the findings, FiMT aims to effect positive change.

Full details of what we have funded, our published research, and our application process can be found on our web site [www.fim-trust.org](http://www.fim-trust.org)



# From the Team

The UK Veterans Family Study set out with the aim to explore the psychosocial determinants of mental health and wellbeing in UK Armed Forces veteran families, including the roles of community support and bespoke service organisations.

This report covers the first phase of this study, surveying the existing body of research into UK veteran families and identifying trends in the data, strengths/limitations of the literature, and knowledge gaps. These results have greatly informed the design and methodology of the data collection phases of the UK Veterans Family Study.

On behalf of our team leads, Prof. Cherie Armour (Queen's University Belfast), Prof. Nicola Fear (King's College London), Dr. Rachael Gribble (King's College London), Prof. Dominic Murphy (Combat Stress), Dr. Neil Kitchiner (Cardiff University), Dr. Kareena McAloney (Glasgow Caledonian), and Prof. Matt Fossey (Anglia Ruskin University), we thank you for reading and are looking forward to sharing our findings – there is so much more to come!



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# List of Acronyms

APA	American Psychiatric Association
AUDIT	Alcohol Use Disorders Identification Test
AUDIT-C	Alcohol Use Disorders Identification Test-Consumption
CAPS	Clinician-Administered PTSD Scale
CES-D	Centre for Epidemiologic Studies Depression scale
CIDI	Composite International Diagnostic Interview schedule
DASS	Depression, Anxiety, and Stress Scale
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders IV
GAD-7	General Anxiety Disorder assessment 7
GSI	General Severity Index
JBI	Joanna Briggs Institute
MHI	Mental Health Inventory
MMPI-2	Minnesota Multiphasic Personality Inventory 2
PDI	Psychological Distress Index
PHQ-2	Patient Health Questionnaire 2
PICO	Population/Intervention/Comparison/Outcome
POV-VDS-R	Partners Of Veterans Distress Scale Revised
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
PTSD	Post traumatic stress disorder
SCL-90-R	Symptom Checklist 90 items Revised
SF-36	Short-Form health survey 36 items
TSQ	Trauma Screening Questionnaire

# Executive Summary

It is well established that military service can affect both Service personnel and their family members, and that these effects can be adverse (posttraumatic stress disorder (PTSD), physical injury, etc.) or positive (resilience, general wellbeing, etc.). While there has been extensive research into the psychological health and wellbeing of active-duty families, the body of research centring on the intimate partners and adult children of ex-Service members is far smaller, generally focused on PTSD/mental illness, and has traditionally drawn participants from a clinical or help-seeking population. The need is clear for research i) focusing on the veteran family (specifically intimate partners and adult children of veterans), ii) investigating the psychosocial determinants of psychological health and wellbeing, iii) featuring open recruitment for a more accurate picture of the veteran family across the 4 nations of the UK.

The UK Veterans Family Study was designed to do just this, with the additional aims of cross-national comparisons, individual-level analyses, couple/family unit analyses through data-linkage, and a full exploration of the impact of social, community, and institutional support to identify both successful avenues of support and what support needs exist. The first aim of the UK Veterans Family Study was a scoping review of the existing literature in veteran family research to identify gaps in the research and to better inform the study scope. As preparation for this systematic review revealed very little UK-based research on the veteran family, the research team expanded the scope of the review to include all countries covered by the United Kingdom - United States of America Agreement (UKUSA) intelligence treaty (the '5-Eyes Alliance'): United Kingdom, United States, Canada, Australia, and New Zealand. This was done as these countries share a common language, a history of similar military involvement/deployment patterns, and similarities in society and culture.

This report summarises this review, which took place prior to the project launch; the main findings are described in the infographic below (with additional information in the full report).



# Review and Key Findings

## BACKGROUND



There are over 159,000 active duty Armed Forces personnel in the UK as of 2021.



The UK military family community population may be as high as 2.4 million.



What is the current state of research into the psychosocial determinants of psychological health and wellbeing in UK Armed Forces veteran families?

## SYSTEMATIC REVIEW



Due to very little UK research, the question became:

“What are the psychosocial determinants of psychological health and wellbeing of intimate partners and now adult children of veterans in the UK as compared against the other 5-Eyes Alliance countries: Australia, Canada, New Zealand, and United States?”



## DATA & ANALYSIS

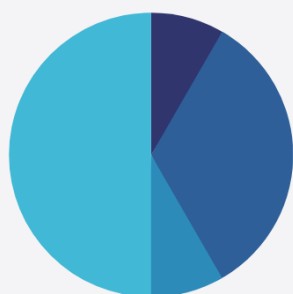


30,000 initial results after a systematic search of published research with 24 studies meeting inclusion criteria.



Data was analysed by: cohort (intimate partner, adult child), country, and study design (quantitative, qualitative).

## GENERAL FINDINGS



UK = 2  
US = 8  
Canada = 2  
Australia = 12



Partner age range: 21-83 years  
Partner mean age: 50 years

Child age range:  
18-60 years

Child mean age:  
37 years

## QUANTITATIVE FINDINGS - PARTNERS



Partners of veterans with PTSD in the UK were more likely to meet clinical levels of depression, anxiety, PTSD, and alcohol misuse than UK partners of non-veterans.

Psychological distress in partners of veterans in the UK, US, Canada, and Australia was associated with the veteran's PTSD

## PSYCHOSOCIAL DETERMINANTS



1 UK study used psychosocial determinants of psychological health and wellbeing in its analysis:

Unemployment was associated with the severity of anxiety, depression, and PTSD

3 US studies included psychosocial determinants:

Education, number of marriages, and age were associated with caregiver psychological adjustment, with financial difficulty being associated with the severity of depressive symptoms.

## QUANTITATIVE FINDINGS - ADULT CHILDREN



No UK studies focused on adult children of veterans.

Studies from the US, Canada, and Australia found that adult children were at risk for anxiety, depression, PTSD, and alcohol/substance misuse.

Parental attachment, family relationships, and family emotional climate were also adversely affected.

## PSYCHOSOCIAL DETERMINANTS



1 US study used psychosocial determinants of psychological health and wellbeing in its analysis:

Age and female gender was associated with depressive symptomology for both female children of veterans and female children of non-veterans.

## QUALITATIVE RESULTS

4 meta-themes emerged from the qualitative studies of family members of veterans with PTSD:

Personal feelings and internal emotions

Veteran oriented

Help & support

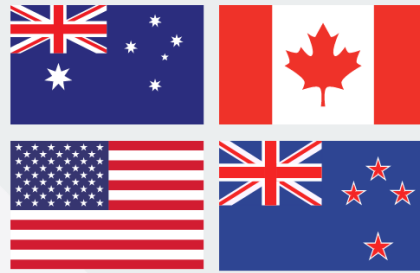
Acting as a unit

None of the 6 qualitative studies (N=6) incorporated psychosocial determinants of psychological health and wellbeing into their analyses, though all except 1 described their sample(s) by sociodemographic variables.

## IMPACT



UK was the only country to examine help-seeking behaviour and barriers to care for partners; additional research is needed based on sparse results.



Association of veteran PTSD & mental illness with adverse effects in partners and children but no research into veteran families without PTSD.

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## KEY FINDINGS

- There is insufficient research into the psychosocial determinants of psychological health and wellbeing of the partners and adult children of veterans in the UK.
- Extant research shows an association of veteran PTSD and psychological distress in the intimate partners of UK veterans, and in partners/adult children of veterans in the other 5-Eyes Alliance countries.
- Significant barriers to support exist for both veterans and their families in the UK.
- These barriers to support act as unique difficulties for individuals and family units experiencing stress.

This systematic review had the advantage of being able to directly influence future research. Several aspects of the UK Veterans Family Study were shaped by the results of this scoping review (see Table 1 below). Using open recruitment will avoid sample bias to provide a more complete picture of the veteran family, rather than focusing on clinical/help-seeking samples defined by PTSD and other psychological disorders/distress. Examining multiple variables of interest will help to describe positive aspects of mental health and wellbeing in the veteran family in addition to creating an ecological view of the family by incorporating more personal and environmental factors. While the prior literature is currently sparse and incomplete, the UK Veterans Family Study is able to contribute to and enrich this body of research for the ultimate benefit of the entire military community.

**Table 1. Gaps in literature addressed in the UK Veterans Family Study**

Issue	Addressed in the UK Veterans Family Study
Lack of research concerning intimate partners and adult children of veterans	Study population will be intimate partners, adult children of veterans, and veterans
Extant studies are largely clinical or help-seeking samples	Open recruitment for veteran families
Prior research focuses on PTSD and psychological disorders and distress	Data to be collected including both positive and negative effects
Definition of terms ‘veteran’ and ‘family’ vary between studies	Concrete definitions of ‘veteran’ and specific family members (intimate partners and adult children)
Prior research features narrow focus and lacks an ecological systems perspective of veteran families	Study will incorporate multiple measures of physical, psychological, environmental, and demographic factors
No research investigating differences in veteran families by nation of the UK	Study will allow for comparisons between the 4 nations of the UK

The UK Veterans Family Study was designed to meet 6 objectives over 3 work packages (Figure 2 below), with Work Package 1, the systematic review, serving to inform the execution of Work Package 2, a qualitative exploration of psychosocial determinants of psychological health and well-being in intimate partners/adult children of veterans and in-depth interviews with support service providers, and Work Package 3, a quantitative survey mirroring the qualitative work in an online survey format.

The systematic review was able to inform the design, processes, and implementation of work for both work packages (Table 1) while meeting the 6 objectives central to the study foundation (Figure 2).

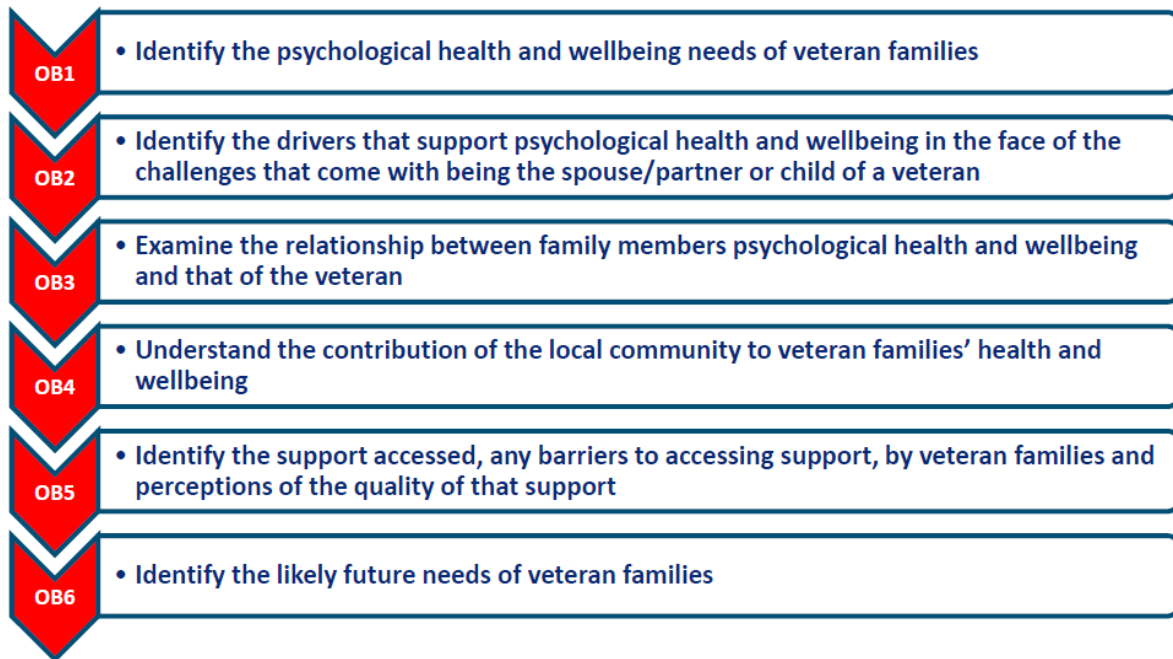


Figure 1. Six core research objectives embedded across three work packages

# Full Report

## 1.0 Introduction

Military service can have effects on Service personnel and on family members close to them, and these effects can endure long after the member has left service. Deployment and participation in armed conflict are not the only factors of military service which can affect military families and not all effects are negative. A considerable body of research exists examining the mental health and wellbeing of active-duty Service personnel and their family, but research focused on families of ex-Service members is far less prevalent. Intimate partners are often not present in veteran-focused research designs, and research examining military-connected children is often in a developmental context or focused on childhood and adolescence, leaving aside psychological consequences when the children become adults. In addition to the background literature on veteran intimate partners and adult children being quite sparse, virtually none of this research specifically investigates psychosocial determinants of psychological health and wellbeing which are positive, such as wellbeing and resilience. Most veteran family research concerns the effects of veterans' adverse mental health effects, such as posttraumatic stress disorder (PTSD) and effects on family members, including secondary traumatisation and the potential for increased risk of other mental illnesses. These studies have recognised the considerable public health implications for veterans' family members but without a substantial body of reliable, conclusive literature, such research is unlikely to lead to additional support, targeted initiatives, or more substantial civilian transition/reintegration programs for veteran families.

The UK Veterans Family Study was commissioned to explore the psychosocial determinants of psychological health and wellbeing in UK Armed Forces family members, specifically the spouses/intimate partners and adult children (18+ years) of veterans. With open recruitment planned, featuring an intimate partner, adult child, and veteran cohort from each of the 4 nations of the UK, data analysis will be possible not only on the cohort and nation level, but also on the couple/family unit level through the use of pseudonymous data-linkage. Using a holistic ecological systems perspective, the UK Veterans Family Study aims to investigate the impact of the psychosocial determinants of psychological health and wellbeing of these populations while also identifying what avenues of support have been beneficial and what support needs exist. The study will include positive aspects of psychological health and wellbeing in addition to more well-researched adverse effects. This report summarises the scoping review which took place prior to the project launch.

The first aim of the UK Veterans Family Study was to 'survey the landscape' of veteran family research, in particular research on the psychosocial determinants of psychological health and wellbeing for veteran families across the UK, by way of a systematic review, to both inform the study scope and identify significant gaps in the literature. However, after a preliminary literature review turned up very little pre-existing research on the UK veteran family and non-Service family members, the decision was made to broaden the scope of the review to include research conducted in 5-Eyes Alliance countries (United Kingdom, United States, Canada, Australia, and New Zealand). The 5-Eyes Alliance is an organisation of member countries party to the United Kingdom – United States of America Agreement (UKUSA) Agreement intelligence treaty and these countries were chosen for this study due to a common language, similar military involvement/deployment patterns, and similarities in society and culture.

The combined military population of the 5-Eyes Alliance countries is estimated at 2.6 million. The addition of family members significantly increases the population size and thus results in a substantial population who may have experienced either positive or negative psychological health effects due to military service/life. The active-duty population is estimated at 159,000 in the United Kingdom, 1,596,169 in the United States and 99,716 in Canada (current population estimations for Australia and New Zealand were not available).

Prior research into the psychosocial determinants of psychological health and wellbeing of intimate partners of serving and ex-serving military personnel has concentrated on the higher levels of secondary traumatisation/PTSD, caregiver burden, and adverse mental health consequences, including alcohol/substance misuse. The extant literature has demonstrated spouses or intimate partners of those serving in the armed forces are at an increased risk of experiencing several mental health difficulties (Lester et al., 2010; Murphy et al., 2016). For example, depression, anxiety disorders, substance abuse issues, sleep disturbances and are at an increased risk of suicidality (Lester et al., 2010; Manguno-Mire et al., 2007; Murphy et al., 2016; Murphy et al., 2017; O'Toole, Outram, Catts & Pierse., 2010; O'Toole, Orreal-Scarborough, Johnston, Catts & Outram., 2015). Despite the clear evidence suggesting the impact of post-conflict mental ill health in veteran families, there remains an overall lack of research in the UK investigating the mental health needs of partners and children of veterans who have mental health difficulties (Samele & Mental Health Foundation., 2013). As the items of concern are usually adverse in nature (PTSD, anxiety, depression, etc.), psychosocial determinants of psychological health and wellbeing are utilised as sociodemographics to describe the study samples and not as variables with an independent effect on psychological health and wellbeing.



Additionally, these studies have shown a spectrum of effects and effect intensity because of the intimate partner's association with their Service-member partner and exposure to the military lifestyle. These studies highlight that the intimate partner carries the burden of not only caring for their spouse and family, but also balancing self-care. This population has unique service needs but also unique barriers to accessing help, as stigma surrounding mental health issues and help-seeking is endemic in military culture, introducing additional barriers to care and treatment for those in distress. As above, virtually no research exists examining the experiences of intimate partners whose veteran partner does not experience PTSD, mental illness, or physical injury: which is indeed most of this population.

Studies examining the experiences of children from military families have focused on behavioural/psychological impact in young children, in middle children and adolescents, and on the family as a unit. This research has largely been conducted in active-duty family populations. There exists a substantial body of literature into mental health, developmental, and academic effects in this population but less literature exists on the psychosocial determinants of psychological health and wellbeing of children of veterans after age 18 and throughout adulthood. Research focusing on adult children of veterans could identify if being a military-connected child carries increased risks for specific mental illnesses, which could be incorporated into early-intervention programs, or if it conveys any psychological benefits, such as increased resilience. With the children of veterans of contemporary conflicts beginning to reach this age, it is imperative that future research focuses on this group to ensure their unique service needs are met.

The project team chose to explore prior research into veteran families using a systematic review, often called the 'gold standard' of scoping research in searching for, gathering, analysing, and discussing large bodies of research. A systematic review involves a detailed research plan defining all aspects of the included population, any factors/variables of interest, expected results in the study population, what types of studies will be included or excluded from the analysis, the exact methods the researchers will use in searching for studies, the timeframe in which studies have been produced, and the exact methods they will use to analyse the studies which they include. A systematic review should be conducted so that it is replicable, meaning that another researcher could read the research plan, follow the same steps, and arrive at the same result. Cochrane, an international network promoting collaboration, organisation, and synthesis of evidence-based research, publishes the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins et al., 2021 (current)), the guidelines under which most systematic reviews, including this project, are conducted.

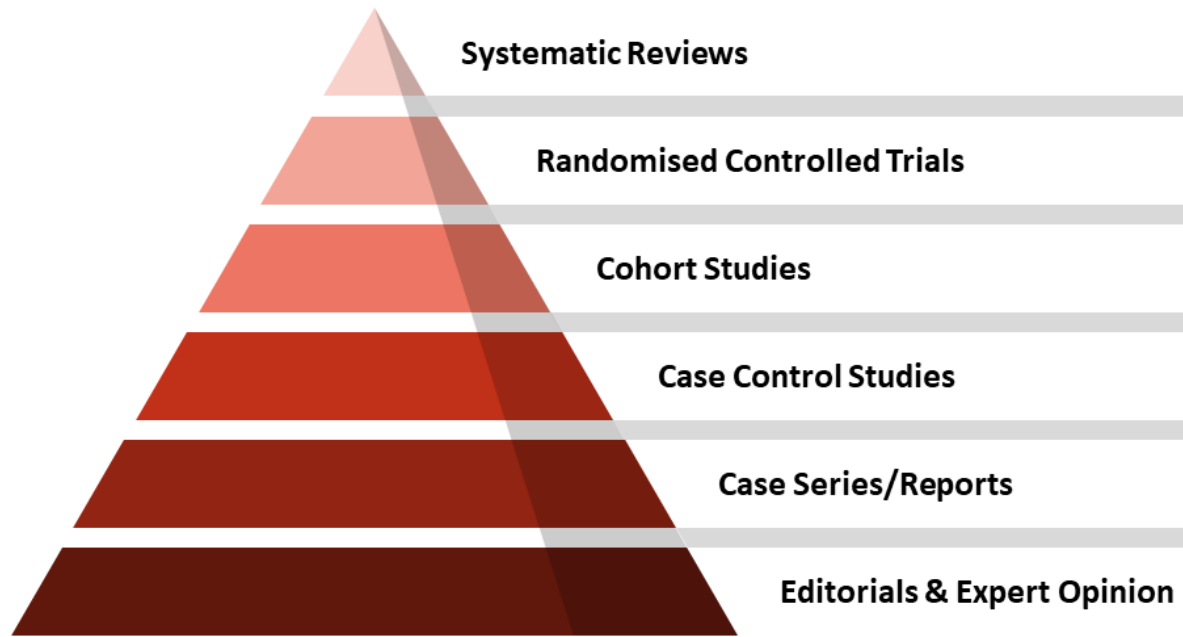


Figure 2. The hierarchy of evidence-based research

The aim of this systematic review was to explore the existing literature on the psychosocial determinants of veteran family health and wellbeing to inform the rest of the UK Veterans Family Study. It described associations between military service and family member psychological health (anxiety, depression, alcohol/substance misuse, and PTSD) as well as the psychosocial determinants of mental health and wellbeing.

After it became clear that there was insufficient prior research to support exploration in a solely UK context, the proposed main research question became:

***“What are the psychosocial determinants of psychological health and wellbeing of intimate partners and now adult children of military ex-Service personnel in the UK as compared against the other 5-Eyes Alliance countries: Australia, Canada, New Zealand, and United States?”***

## 2.0 Methods

### 2.1 Project and Protocol Drafting

In November 2020, the project team met to discuss the goals and aims of the systematic review. The main research question was: “What are the psychosocial determinants of psychological health and wellbeing of intimate partners and adult children of military ex-Service personnel in the 5-Eyes Alliance: United Kingdom, Australia, Canada, New Zealand, and United States?” with three associated sub-questions:

- What determinants have been explored and which are more common/unique?
- Are there cross-country differences in risk and resilience factors?
- How do risk and resilience factors differ across intimate partners versus adult children?

The target population was family members of veterans in 5-Eyes Alliance countries, specifically defined as current or former intimate partners (married & unmarried) of veterans and adult children (age 18+) of those intimate partners, whether biologically or not related to the veteran. Parents, siblings, and other family members of veterans and intimate partners were excluded, as were children under age 18 years.

The main areas of interest were the psychosocial determinants of psychological health and wellbeing as measured by reports of anxiety, depression, PTSD, and alcohol/substance misuse. Additional areas of interest included risk/resilience factors, studies linking family member’s psychological health and wellbeing to the veteran’s psychological health and wellbeing.

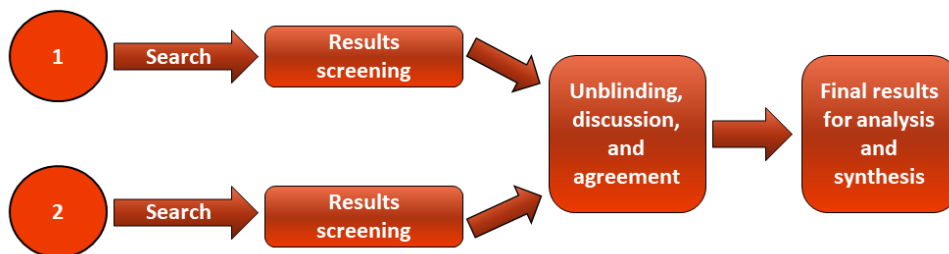
Study inclusion criteria were formalised as:

- Full or partial population of current/past intimate partners of veterans, adult children of veterans, or a ‘family unit’ including both.
- Population from a 5-Eyes Alliance country.
- Estimates of psychological/mental health outcomes defined as PTSD, anxiety, depression, alcohol/substance misuse, risk, and/or resilience.
- Publication in a peer reviewed journal.
- Publication in English.
- Publication between 2000 and 2020 (inclusive).
- Quantitative, qualitative, and/or mixed method studies.

Studies were excluded if they did not fit the above inclusion criteria. Having agreed on the scope of the review, a detailed protocol was written and submitted to PROSPERO<sup>1</sup>, an international database for registering health and social science protocols. It was approved with the reference number CRD42020221166<sup>2</sup>.

## 2.2 Search Strategy and Screening Process

The strength of a systematic review is based on casting as wide a net as possible during the literature search and narrowing the results based on the inclusion/exclusion criteria. Two members of the project team were 'blinded', and both conducted a systematic search without communicating but while using the same methods. Each then screened their results before 'unblinding' and coming together to discuss results, only finalising the results once they both agreed.

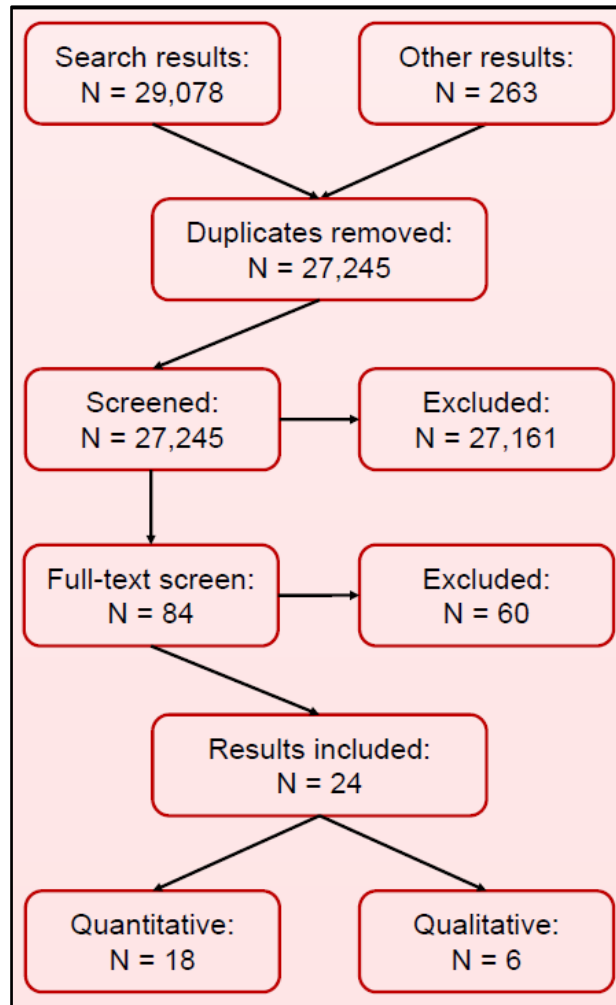


**Figure 3. Blind search, results screening, and unblinding process**

Four strings of search terms were designed and used by both members. These search strings contained terms of interest in a military context, pertaining to the population of interest, covering both mental health and psychological wellbeing effects, and were used to search for results in electronic databases. Specific military-related journals were also searched, including *BMJ Military Health*, *Military Medicine*, *Military Behavioural Health*, *Armed Forces and Society*, and the *Journal of Military, Veteran, and Family Health*. The search sourced 29,341 results (Figure 4), ultimately resulting in the selection of 24 studies meeting inclusion criteria for inclusion: 18 quantitative studies and 6 qualitative studies.

<sup>1</sup> <https://www.crd.york.ac.uk/prosperto/>

<sup>2</sup> [www.crd.york.ac.uk/prosperto/display\\_record.php?ID=CRD42020221166](https://www.crd.york.ac.uk/prosperto/display_record.php?ID=CRD42020221166)



**Figure 4. PRISMA flow diagram describing results evaluation**

### **2.3 Data Analysis Strategy**

The included studies featured both quantitative (expressing results as a numerical output) and qualitative (expressing results in words and themes) studies. The quantitative studies were analysed using a narrative synthesis approach, a word-based technique to summarise findings from multiple studies. For the qualitative studies, a meta-synthesis was selected, specifically a descriptive-interpretive approach. This technique involves categorising the data and noting emergent common themes.

## 3.0 Results

### 3.1 General Findings

The 24 studies reviewed detailed research in the UK (N=2), the US (N=8), Canada (N=2), and Australia (N=12), with no results from New Zealand. The number of participants in these studies ranged from 3-1966 and were predominantly female, with 13 studies reporting a completely female population (including sub-populations) and 11 reporting their study population (including sub-populations) as at least >50% female. Two studies did not report gender. Partner ages ranged from 21-83 years (with a mean age of 50.1 years) and adult child ages ranged from 18-60 (with a mean age of 37.76 years). Conflict was reported in 15 studies, with Vietnam (N=14) and “post 9/11 conflicts” (N=1) represented. The military service branch of ex-serving members was reported in 9 studies, representing the Army (N=5), Navy/Air force (N=3), and Army/Air force (N=1), with 3 studies reporting veteran rank, all at >80% enlisted. Time in service of ex-serving members was noted in 2 studies with one studying noting that 54% of the veterans had served >2 years and the other study noting veterans had served between 2 and 38 years. Time since separation from service of ex-serving members was recorded in only 1 study, described as >10 years.



Figure 5. General demographics

### 3.2 Narrative Analysis of quantitative studies

The quantitative studies (N=18) were assessed by study population (intimate partners: N=12, adult children: N=6), psychological disorder, and psychosocial determinants of psychological health and wellbeing (Tables 4 and 5). Depression was the most frequently examined (N=11), followed by anxiety (N=9), general distress (N=8), alcohol/substance misuse (N=6), and PTSD (N=5). Several studies examined more than one psychological disorder. Multiple clinical scales, measures, and indices were

used to assess these psychological disorders and distress. Data on several different psychosocial determinants of psychological health and wellbeing were presented in the qualitative studies with age (N=18) being present in all, followed by relationship status (N=15), education level (N=13), ethnicity (N=10), gender (N=8), relationship length (N=7), children living in the home (N=3), household income (N=3), parental status (N=2), caregiver status (N=2), income source (N=2), access to private healthcare (N=2), number of marriages (N=1), support group membership (N=1), household population (N=1), financial index (N=1), age of children (N=1), financial difficulty (N=1), physical health (N=1), height (N=1), and weight (N=1).

### **3.2.1 Partners of veterans**

Exploring mental health and help-seeking beliefs in partners of veterans who had been diagnosed with PTSD, Murphy, Palmer, & Busuttill (UK) found that 45% of partners were at clinical levels for alcohol misuse, 39% for depression, 37% for generalised anxiety disorder, and 17% for PTSD symptomology. The clinical population of partners in this study were more likely than the non-clinical population to report barriers to care and more likely to associate those barriers with stigmatising beliefs. Psychosocial determinants of psychological health and wellbeing were generally not found to be predictive of mental distress/disorder severity though not working was associated with the severity of anxiety, depression, and PTSD.

As with the UK study, most of the partner studies from the other 5-Eyes countries focused on partners of veterans with PTSD and the secondary effects of the disorder on the partner. Campbell and Renshaw (USA), MacDonell et al. (AUS), and Manguno-Mire et al. (USA) focused on the relationship between veteran PTSD and partner distress. Discussions about the military conflict between veterans and partners increased partner distress only when veteran PTSD was at/above a clinical level. Veteran PTSD was associated with partner distress, impacting dyadic adjustment (a process describing the interpersonal mechanics of a couple in terms of conflict, issues, marital satisfaction, and ability to work together to solve both internal and external problems), life satisfaction, and caregiver burden. O'Toole et al. (AUS) examined the risk of suicidal ideation in veteran/partner dyads, finding veteran PTSD was uniquely predictive of suicidality for both veterans and their partners.

Two Australian studies covered multiple psychological effects in partners as compared with national prevalence rates. MacDonell, Bhullar, & Thorsteinsson (AUS) examined anxiety, depression, and stress in 4 samples of military partners. Partners of ex-Service personnel showed mean scores for anxiety, depression, and stress far in excess of population norms. O'Toole et al. (AUS) found higher prevalence rates of 11 out of 17 psychopathologies in a partner sample, with generalised anxiety disorder in

partners associated with veteran suicidal ideation. Severe single-episode depression was associated with combat-related veteran PTSD and moderate recurrent depression was associated with battle casualty.

Lee et al. (USA) examined problem drinking in veterans and partners, noting a gap in the literature concerning alcohol misuse in separated Service personnel/partners. The study sample consisted of 82% veterans, 18% reservists/civilian-assigned National Guard, and the spouses of both groups. The study found higher levels of drinking by either member of the couple independently influenced the other's hazardous drinking.

Four studies described non-significant main or secondary findings. Alessi et al. (USA) found non-significant higher levels of anxiety and depression in wives of veterans compared to a married female control group. Calhoun, Backham, & Bosworth (USA) found partners caring for veterans with PTSD experienced higher rates of mental illnesses than partners of non-PTSD veterans, but there was no independent association between veteran PTSD and partner depression or anxiety. Moriarty et al. (USA) found depression in veteran family members significantly higher when caring for a veteran with PTSD but there was no significant difference in depression between partners and other family members. Saban et al. (USA) examined depression as an intermediary between grief and inflammation in female partners caring for veterans with a traumatic brain injury, but depressive symptoms did not mediate the effects of anger/blame on inflammation.

Of the 18 quantitative studies focusing on intimate partners, most (N=8) used psychosocial determinants of psychological health and wellbeing only as sociodemographic descriptors of the study sample(s). The remaining N=4 studies (Murphy, Palmer, & Busuttil (UK); Calhoun, Backham, & Bosworth (USA); Moriarty et al. (USA); Manguno-Mire et al. (USA)) did utilise psychosocial determinants of psychological health and wellbeing in main analyses. Calhoun, Backham, & Bosworth (USA) found that the partners of veterans with PTSD did not statistically differ by age from partners of veterans without PTSD and that education, number of marriages, and partner age were associated with caregiver psychological adjustment in the partners of veterans with PTSD. Moriarty et al. (USA) found that only financial difficulty was associated with increased severity of family member depressive symptoms, and Manguno-Mire et al. (USA) found that age was not a significant variable in the association between veteran PTSD and partner distress. The results of Murphy, Palmer, & Busuttil (UK) are described above.



**Table 2. Summary of partner quantitative results**

<b>Study</b>	<b>Country</b>	<b>Psychosocial Determinants</b>	<b>Psychol. Health Effects</b>	<b>Findings</b>
Alessi et al. (2001)	USA	Age, ethnicity, household income, education, ethnicity, relationship status	Anxiety, Depression	Higher anxiety/depression in veterans' partners compared to a control, but non-significant overall findings
Calhoun, Backham, & Bosworth (2002)	USA	Age, education, number of marriages, caregiver status	Anxiety, Depression	Higher rates of mental illness in partners of veterans with PTSD, but non-significant association
Campbell & Renshaw (2012)	USA	Age, ethnicity, relationship status, relationship length	Distress	Discussing veteran conflict experience increased partner distress if veteran PTSD was at a clinical level
Lee et al. (2020)	USA	Age, gender, ethnicity, education, relationship status, parental status, children living at home	Alcohol	Higher levels of drinking by either partner or veteran influenced the other's problem drinking behaviour
MacDonell, Bhullar, & Thorsteinsson (2016)	AUS	Age, relationship status, relationship length	Anxiety, Depression, Distress	Partners of veterans had higher mean scores assessing mental illness than population norms
MacDonell et al. (2014)	AUS	Age, relationship length, caregiver status, support group membership	Distress	Veteran PTSD associated with partner distress
Manguno-Mire et al. (2007)	USA	Age, education, relationship status, ethnicity, household population, household income, financial index	Distress	Partners' dyadic adjustment, life satisfaction, and caregiver burden influenced by veteran PTSD
Moriarty et al. (2018)	USA	Age, gender, education, relationship status, relationship length, parental status,	Depression	Family members' depression higher when caring for a veteran with PTSD, but no independent association

		number of children, children at living home, age of children, employment, ethnicity, financial difficulty		
Murphy, Palmer, & Busuttil (2016)	UK	Age, physical health, employment, children living at home, relationship status, relationship length	Alcohol, Anxiety, Depression, PTSD	Partners at clinical levels for alcohol misuse, depression, anxiety, and PTSD being more likely to report barriers to care and stigmatic beliefs
O'Toole et al. (2010)	AUS	Age, ethnicity, relationship status, relationship length, education	Anxiety, Depression	Higher rates of mental illness in partners, with several of these associated with veteran mental illness/military experiences
O'Toole et al. (2015)	AUS	Age, ethnicity, relationship status, relationship length, education	Distress, Suicidality	Veteran PTSD uniquely predicted suicidality for both veterans and their partners.
Saban et al. (2016)	USA	Age, height, weight, relationship status, education, ethnicity, household income	Depression	Depressive symptoms did not affect the relationship between grief and inflammation in female partners caring for veterans with a traumatic brain injury

### 3.2.2 Adult children of veterans

Three studies focused on PTSD risk among the adult children of Australian Vietnam veterans, either because of childhood family emotional climate or intergenerational transmission of trauma. Gunter et al. (AUS) found paternal attachment associated with PTSD, anxiety, and depression in adult daughters and maternal attachment associated with PTSD and depression in all offspring, and with anxiety in daughters. O'Toole et al. (AUS) found veteran PTSD was associated with PTSD risk in adult children and a gendered effect whereby veteran depression influenced PTSD risk in males, and veteran alcohol misuse influenced alcohol misuse in males and PTSD risk in females (but not after controlling for veteran PTSD). O'Toole et al. (AUS) included the effect of PTSD on mental health in this population, finding it associated with increased trauma exposure and higher rates of anxiety, depression,

alcohol/substance misuse, and PTSD. Veteran PTSD was also strongly associated with the other psychological disorders and distress in adult children. O'Toole et al. (AUS) also examined the impact of a veteran parent with PTSD and family emotional climate on adult children, but from a context of positive/negative attachment impact on adult child distress by PTSD symptom rather than aggregate disorder, finding veteran PTSD and depression associated with a significant, negative effect on family emotional climate, with daughters particularly affected.

Forrest, Edwards, and Daraganova (AUS) looked at specific psychopathologies and overall mental health in adult children of veterans who had been deployed compared to children of veterans who had not been deployed, finding higher likelihood of anxiety, depression, and poor mental health, in addition to higher likelihood of suicide/self-harm and suicidal plan among the former.

Johnson, Vidal, and Lilly (USA) examined anxiety and depression in a college-aged sample (+18 years), finding adult children of veterans did not differ in anxiety prevalence compared to a normative sample and while a veteran parent was positively correlated with child depression, significance was not reached after controlling for demographic factors of the adult child.

Of the quantitative studies focusing on adult children most (N=5) used psychosocial determinants of psychological health and wellbeing as sociodemographic descriptors of the study samples(s) with Forrest, Edwards, and Daraganova (AUS) controlling for sociodemographic in their analytical model, Gunter et al. (AUS) assessing their two gendered cohorts separately, and O'Toole et al. (AUS) using sociodemographic for a prevalence comparison with population norms. Only N=1 of the studies (Johnson, Vidal, and Lilly (USA)) used psychosocial determinants of psychological health and wellbeing as variables in their analyses, finding age and female gender associated with depressive symptomology, though this association was true for both female children of veterans and female children of non-veterans.

**Table 3. Summary of adult child quantitative results**

<b>Study</b>	<b>Country</b>	<b>Psychosocial Determinants</b>	<b>Psychol. Health Effects</b>	<b>Findings</b>
Forrest, Edwards, & Daraganova (2018)	AUS	Age, gender, education, employment, relationship status	Anxiety, Depression, Mental health	Higher likelihood of anxiety, depression, suicide/self-harm, and suicidal plan in children of deployed veterans compared against children of non-deployed veterans
Gunter et al. (2020)	AUS	Age, gender, education, employment, relationship status	Anxiety, Depression, PTSD	Paternal attachment associated with PTSD, anxiety, and depression in daughters; maternal attachment associated with PTSD and depression in all offspring, and with anxiety in daughters
Johnson, Vidal, & Lilly (2018)	USA	Age, gender, ethnicity	Anxiety, Depression	No difference in anxiety between children of veterans and a normative sample, association with depression but non-significant
O'Toole et al. (2016)	AUS	Age, gender, education, employment, income source, access to private healthcare, relationship status	Alcohol, PTSD	Veteran depression influenced PTSD risk in male adult children, and veteran alcohol misuse influenced alcohol misuse in males and PTSD risk in females
O'Toole et al. (2018b)	AUS	Age, gender, education, employment, relationship status	Alcohol, Anxiety, Depression, PTSD	Veteran PTSD associated with increased trauma exposure, higher rates of anxiety, depression, alcohol/substance misuse, and PTSD in adult children
O'Toole et al. (2018)	AUS	Age, gender, education, employment, income source, access to private healthcare, relationship status	Distress, Attachment, Family emotional environment	PTSD and depression associated with a significant, negative effect on family emotional climate

### 3.3 Meta-synthesis of qualitative findings

Data collection for qualitative studies included semi-structured interviews (AUS, UK), focus groups (AUS, CAN) and harvesting opportunistic data from an Internet forum (CAN). These studies focused almost exclusively on partners (N=4) or the family unit (N=1) with only one study describing the experiences of adult children (a sample of three siblings from a single family). Murphy et al. (2017, UK) explored the experiences of female partners of help-seeking veterans in a semi-structured interview context, including being in a relationship with a veteran with PTSD and personal support/help-seeking.

None of the qualitative studies (N=6) incorporated psychosocial determinants of psychological health and wellbeing into their analyses. Beks (2016) featured anonymous data harvested from an Internet forum, Cramm et al. (2020) used age and relationship length as sociodemographic descriptors of the sample, McCormack, Hagger, & Joseph (2011) described the 4 participants by age, McCormack & Sly (2013) described the 3 participants by age, Murphy et al. (2017) described the sample by age, relationship length, living with the veteran partner, and children living at home, and Outram et al. (2009) described the sample by age, relationship status, living with the veteran partner, parental status, paternity of children, child age, children living at home, and employment.

These studies were largely focused on the experiences of family members as they related to a veteran with PTSD. Four meta-synthesis themes were identified based on the themes presented in each piece of research: 'personal feelings and internal emotions' referencing individual internal thoughts and self-referential emotions, 'veteran-oriented' focusing exclusively on the veteran, 'help & support' describing help/support seeking, desires, and barriers, and 'acting as a unit' referring to a shared environment, either as a dyad or a family unit.

Figure 6 shows the allocation of research findings nested into the meta-synthesis themes. Themes identified with <sup>1</sup> were taken from (Beks, 2016), <sup>2</sup> from (Cramm et al., 2020), <sup>3</sup> from (McCormack, Hagger, & Joseph, 2011), <sup>4</sup> from (McCormack & Sly, 2013), <sup>5</sup> from (Murphy et al., 2017), and <sup>6</sup> from (Outram et al., 2009). Some themes included subordinate themes detailed in the papers but denoted here with \* as only main themes were analysed.

Personal feelings and internal emotions	Veteran-oriented
<ul style="list-style-type: none"> <li>- alone<sup>1</sup></li> <li>- living with distress of vicarious trauma<sup>3</sup></li> <li>- vicarious growth<sup>*3</sup></li> <li>- making meaning of dual complex trauma<sup>4</sup></li> <li>- fragile intimate self<sup>*4</sup></li> <li>- growthful forgiveness and self-care<sup>*4</sup></li> <li>- physical health<sup>6</sup></li> <li>- mental health<sup>6</sup></li> <li>- altered sense of self<sup>6</sup></li> <li>- search for explanation<sup>6</sup></li> </ul>	<ul style="list-style-type: none"> <li>- all-consuming effects of the illness<sup>1</sup></li> <li>- walking on eggshells<sup>1</sup></li> <li>- ambiguous loss<sup>1</sup></li> <li>- betrayal and neglect<sup>*4</sup></li> <li>- like father, like daughter<sup>*4</sup></li> <li>- challenges faced<sup>*5</sup></li> <li>- like living in a war zone<sup>6</sup></li> <li>- wife as carer<sup>6</sup></li> </ul>
Help & support	Acting as a unit
<ul style="list-style-type: none"> <li>- desired type of support<sup>*5</sup></li> <li>- barriers to support<sup>*5</sup></li> <li>- sources of help: the veteran family<sup>6</sup></li> </ul>	<ul style="list-style-type: none"> <li>- facing PTSD as a unit<sup>1</sup></li> <li>- veteran's mental health problems created multifaceted/pervasive changes in family structure, roles, and routines, impacting caregiving/social participation<sup>2</sup></li> <li>- changes created negative mental health and well-being impacts for family members<sup>2</sup></li> </ul>

**Figure 6. Meta-synthesis themes**

### 3.3.1 Personal feelings and internal emotions

Partners of veterans with PTSD described feeling ‘alone’, isolated from their partner and society, with their physical/mental health adversely impacted by the veteran’s PTSD. They described an ‘altered sense of self’ defined by loss of self, life experiences, and isolation. Partners described secondary traumatisation as ‘living with distress of vicarious trauma’ and reported adapting to how their partner and life had changed. They referred to this process as a ‘search for explanation’ into their partner’s suffering and how they could understand it. Some partners took meaning from the experience, describing a journey of ‘vicarious growth’, including subordinate themes of describing development of ‘humble acceptance’, ‘love’, ‘gratitude’, ‘empathy’, and ‘personal strength’.

Adult children expressed a similar path with the over-arching theme of ‘making meaning of dual complex trauma’, encompassing distress of a ‘fragile intimate self’, with the subordinate themes of a ‘weak sense of self’, ‘shame and self-blame’, ‘abusive adult relationships’, and ‘burden of responsibility’. Though both partners and adult children described the construct of the self, partners phrased this as a change to something fundamental to themselves while the adult children described a foundational damage to their sense of self and the lasting consequences. These individuals also explored the experience of healing as ‘growthful forgiveness and self-care’ described by subordinate themes of ‘meaning making and acceptance’, ‘forgiveness’, ‘rejecting rejection’, and ‘doing it differently’.

### **3.3.2 Veteran-oriented focus**

Partners described the effects of PTSD on their relationship with their veteran partner, explaining how the overwhelming impact of caring for their partner and managing other aspects of life stemmed from the 'all-consuming effects of the illness', and led to feeling 'ambiguous loss' regarding the veteran's former self and the unwelcome feelings of burden the changing role to a 'wife as carer' could generate. Unpredictable and volatile behaviour among veterans was reported to create an environment of tension and fear, described as 'walking on eggshells' and 'like living in a war zone'. The 'challenges faced' in these relationships were described by some partners as leading to the subordinate themes of 'inequality in relationship', 'loss of congruence with own identity', 'volatile environment', and 'emotional distress and isolation'.

Adult children explained the negative impact on childhood with a veteran parent, feeling 'betrayal and neglect', assessing themselves as unworthy of their father's attention/affection while he was perceived to vacillate between neglectful absence ('absent father'), abuse ('not good enough'), and attempts to be a good father ('good dad/bad dad'). They described their own secondary traumatisation as 'like father, like daughter', including the subordinate themes of 'self-medication', 'learning to be on alert', and being 'denied the right to feel', conveying their perception that their childhood had recreated them in the image of their father.

### **3.3.3 Help & support**

This theme was identified from two studies, both focused on partners. In Murphy et al. (UK), partners described their 'desired type of support', which included the subordinate themes of 'practical focus on improving', 'sharing with fellow experts', and 'care tailored to the partner'. 'Barriers to support' included the subordinate themes of 'feeling restricted by practical barriers' and 'ambivalence about involvement of others'. The value of applicable support was highlighted in Outram et al. (AUS), where the theme 'sources of help: the veteran family' was identified as partners explained the connection and relief they felt when talking to others from within the military community in the same situation.

### **3.3.4 Acting as a unit**

'Facing PTSD as a unit' was identified as a theme encapsulating the partner's commitment to the veteran and the relationship, externalising PTSD as a "third entity" to be fought. Cramm et al. (CAN) focused on the family unit, with participants reporting that 'veteran's mental health problems created multifaceted changes in family structure, roles, and routines, impacting caregiving/social

participation', conceptualising the impact on a systemic level with multiple individuals affected in multiple ways. These 'changes created negative mental health and wellbeing impacts for family members' by reciprocal processes between the veteran, the individual, and the family unit. This theme was present in both partner- and adult child-focused studies.



## 4.0 Discussion and Recommendations

### 4.1 Overall findings

This review was conducted to highlight and address the extant gaps in the literature concerning the psychosocial determinants of psychological health and wellbeing for veterans' families across the UK and to compare that research against studies conducted in the other 5-Eyes Alliance countries. While it had been hoped that sufficient literature existed for a systematic review of research from the UK, the lack of studies meant this was not possible. Only 2 UK studies met criteria for the review and both of these were limited to sampling from a population of treatment-seeking veterans, rather than a community sample, and were restricted to intimate partners only. By expanding the scope of the review to the 5-Eyes Alliance countries, 24 studies were found which met the inclusion criteria, exposing the under-representation of this population in previous research but also flagging the potential and overwhelming need for future studies.



- Veteran/partner studies
- High % of sample above clinical threshold
- Barriers to care/desired types of support



- Majority non-significant results
- Veteran/partner studies
- Association of PTSD with partner's distress



- Partner & family experiences of PTSD
- Both positive and negative themes
- Focusing on family as a unit



- Family centric
- Vietnam veteran families
- Comparison to national prevalence rates

Figure 7. A comparison of main findings by country

The UK studies ( $N=2$ ) both investigated intimate partners, mental health, and perceived barriers to care for both themselves and their veteran with PTSD. Murphy et al. (UK) found large percentages of the study population met clinical thresholds for alcohol misuse (45%), depression (39%), general anxiety disorder (GAD) (37%), and PTSD (17%), with this clinical subgroup perceiving more barriers and more stigmatic associations. In the qualitative study, partners described challenges due to veteran PTSD ('inequality in relationship', 'loss of congruence with own identity', 'volatile environment', and 'emotional distress and isolation') but were hopeful and positive when discussing optimal support and care ('practical focus on improving', 'sharing with fellow experts', and 'care tailored to the partner'), with fewer perceived barriers.

All of the US studies ( $N=8$ ) were quantitative, all but 1 focused on the intimate partner, and 5 featured non-significant main/secondary results. The remaining 3 studies examined the association between veteran PTSD and partner distress, and reciprocal hazardous drinking in a veteran/partner dyad. The US findings reinforced the relationship between veteran PTSD/mental health issues and partner distress/psychopathology, centring on the effects of PTSD and secondary trauma on the couple from both a psychological and practical viewpoint. It is worth noting that only 2 US studies utilised a Vietnam veteran cohort versus 12 Australian studies, despite a Vietnam involvement of approximately 2.7 million troops compared to Australia's 50,000 (Dennis, Grey, Morris, Prior, & Bou, 2008); this may be due to differing cultural views of the Vietnam conflict.

The Canadian studies ( $N=2$ ) were qualitative explorations of partner and family unit experiences of the veteran's PTSD. While partners described negative impacts on their mental health (themes 'alone', 'ambiguous loss', and 'all-consuming effects of the illness'), there was the uplifting 'facing PTSD as a unit', and while family members reported adverse effects on their mental health and wellbeing, there were also changes made in the family structure as a result of/reaction to the veteran's PTSD.

Half of the studies reviewed ( $N=12$ ) were Australian and all focused on family members of Vietnam veterans, specifically the relationships between veteran PTSD and psychosocial determinants of psychological health and wellbeing in intimate partners/adult children. Additionally, the Australian studies were all based on a sample of Vietnam veterans and family members, meaning the populations of each study were not unique. The quantitative studies examined the prevalence of psychopathologies in these populations compared to other military subgroups and national prevalence rates. The qualitative studies were very much family centred, exploring the experience of living with a veteran's PTSD and effects on the entire family, both positive and negative. Findings indicated higher rates of difficulties in partners/adult children as a function of the veteran's PTSD as

compared to national prevalence rates and/or other subgroups, with family-centric adaptation and support described in the qualitative findings.

While New Zealand is a member of the 5-Eyes Alliance treaty, no studies from the country met inclusion criteria and it was therefore not represented in the systematic review.

The UK studies highlighted the clinical disorders and distress experienced by partners of veterans with PTSD and the difficulties they faced in both seeking support and having access to that support. While adverse mental health effects in partners were prominent in the US, Canadian, and Australian studies, the UK studies were the only research expressly addressing help-seeking and barriers to support. This was notable, leading to the UK Veterans Family Study including indices designed to measure several aspects of support and attitudes towards help-seeking. It is evident that not all partners/adult children of veterans are in need of support but even if a minority of these populations is in need, programs and initiatives should be designed to provide help and alleviate distress.

Veteran PTSD and symptomology were particularly prominent in the literature, reflecting the seriousness of the issue, but also potentially due to publishing bias and researcher focus. Clinically sourced samples represent only help-seeking subgroups, and a focus on PTSD neglects other psychopathologies leading to a constant re-focusing of veteran family issues through the lens of PTSD, whether it is present in individual lives or not. This review had multiple stated goals/aims for exploration, however, as the abundance of veteran family research concerned PTSD, the findings reflect the impact of PTSD but do not accurately describe a representative experience of veteran families in the 5 Eyes countries. Importantly, most veterans do not experience psychological consequences of service, with personal risk associated with trauma/injury, which in turn have the potential to independently affect family members.

## **4.2 Strengths and limitations**

Limitations are endemic to all research. Thus, the results of this review must be considered alongside its limitations. While inclusion criteria defined 'veterans' as ex-Service personnel, this term was used broadly and inconsistently in the literature, mirroring the differences in this definition across countries of the 5-Eyes Alliance. This also reflects differing cultural views of both the Armed Forces as an institution and individual Service personnel; the UK favours an inclusive definition while the US prioritises length and details of service, and Australia applies the term only to those who have served overseas. While all results presented pertained to 5-Eyes Alliance countries, differences in demographic, cultural, and psychosocial variables prevented generalisation to a higher population

level. Several findings showed effects which fell below statistical significance or did not survive comparison to control groups. However, the distress suffered by the partners and adult children should not be discounted. Though these studies examined the same results in similar populations, they used differing measures, main effects, and context, damaging the validity of direct comparisons or a 'true' quantitative meta-analysis. Qualitative data from the included studies illustrated partner and adult child distress and personal hardship where quantitative measures could not. While unpublished 'gray' literature was cited here, it was not included in the review. Though not peer-reviewed, such literature often includes military/government data not otherwise available to researchers. Finally, there was a gender disparity in the veterans referred to by family members ('husband', or 'father'). This does not accurately depict the veteran population, which includes veterans who are not male.

The strengths of this review include a rigorous methodology which included protocol registry and strict adherence to Cochrane standards for the performance of a systematic review. It has also illuminated the breadth of the current research into the psychological health and wellbeing of partners and adult children of veterans while also highlighting how little is known about the mental health and wellbeing of these populations.

#### **4.2.1 Limitations of the included research**

The results of this project must also be taken with caution considering the limitations of the existing research, as the scope of these findings were limited by the scarcity of the literature. Being a narrow field of study, the lack of literature impacted results as most of the studies investigating psychosocial determinants of psychological health and wellbeing in the children of veterans used samples <18 years of age and most of the studies examining these effects in the partners of veterans concentrated on active-duty samples. Of the 24 studies reviewed here, 17 featured recruitment through the veteran while only six recruited family members directly (N=1 utilised opportunistic secondary data). Most of the available literature was focused on veteran PTSD, neglecting the experiences of military veteran families who are not dealing with PTSD or any other mental illness. Additionally, there is a sizable body of research exploring active-duty deployment and reintegration in the military family but substantially less on the transition to civilian life and that which occurs thereafter. Several additional objectives were outlined in the review protocol for investigation in this review, including identifying risk/resilience factors, studies linking family member psychosocial determinants of psychological health and wellbeing to those of the ex-Service member, and differences in: cross-country results, risk/resilience factors between partners and children, early-service-leaver families, branch of military

service, and between children born during their parent's military service and post-service. Unfortunately, these objectives were not able to be fulfilled due to lack of relevant data in the included studies and lack of included studies relevant to these objectives, which again underscores the need for additional research into these issues.

### **4.3 Implications and future research:**

The implications of this review are:

- i) There is insufficient research into the psychosocial determinants of psychological health and wellbeing of the partners and adult children of ex-Service personnel in the UK.***
- ii) The extant research has shown a clear association of veteran PTSD and psychological distress in the intimate partners of UK ex-Service personnel, and in partners/adult children of ex-Service members in the other 5-Eyes Alliance countries.***
- iii) Significant barriers to support exist for both veterans and their families in the UK.***
- iv) These barriers to support act as unique difficulties for individuals and family units experiencing stress.***

From the small body of literature available, it is evident that a sub-group of adult children and partners of veterans may face unique mental health risks dependent on individual factors but associated with veteran PTSD. As discussed previously, due to the lack of population-level research, the results here cannot be taken as representative of the veteran family in 5-Eyes Alliance countries.

Additional research is urgently needed to explore not only psychosocial determinants of psychological health disorders and distress in veteran families, but also to investigate psychosocial determinants of resilience and wellbeing. As an example, there exists a large population of adult children of Vietnam veterans within the 5-Eyes countries and the only qualitative research describing their experiences was limited to a single Australian study of 1 family. Additionally, those who were young during the post 9/11 conflicts are just reaching adulthood. Research focusing on this population would not only

help to build a body of literature but would also be of considerable value to the current generation of children from military families who will become adult children of veterans.

Most of the research discussed here focused on veterans with PTSD, excluding other mental illnesses but also ignoring that most veterans do not suffer from mental illness. Forming studies around partners and adult children of all veterans rather than recruiting only from clinical or help-seeking samples would present a more accurate, and more positive, picture of the military veteran family. As above, this type of research would serve not only the current generation of military families but also many to come. Research into all aspects of mental health and wellbeing would be an important resource in designing civilian transition/reintegration programs, mental health and wellbeing initiatives, and other venues of support.

This systematic review has the advantage of being able to directly influence future research. Several aspects of the UK Veterans Family Study were shaped by the results of this scoping review. Using open recruitment will avoid sample bias to provide a more complete picture of the veteran family, rather than focusing on clinical/help-seeking samples defined by PTSD and other psychological disorders/distress. Examining multiple variables of interest will help to describe positive aspects of mental health and wellbeing in the veteran family in addition to creating an ecological view of the family by incorporating more personal and environmental factors. While the prior literature is currently sparse and incomplete, the UK Veterans Family Study is able to contribute to and enrich this body of research for the ultimate benefit of the entire military community.

**Table 4. Gaps in literature addressed in the UK Veterans Family Study**

Issue	Addressed in the UK Veterans Family Study
Lack of research concerning intimate partners and adult children of veterans	Study population will be intimate partners, adult children of veterans, and veterans
Extant studies are largely clinical or help-seeking samples	Open recruitment for veteran families
Prior research focuses on PTSD and psychological disorders and distress	Data to be collected including both positive and negative effects
Definition of terms 'veteran' and 'family' vary between studies	Concrete definitions of 'veteran' and specific family members (intimate partners and adult children)

Prior research features narrow focus and lacks an ecological systems perspective of veteran families	Study will incorporate multiple measures of physical, psychological, environmental, and demographic factors
No research investigating differences in veteran families by nation of the UK	Study will allow for comparisons between the 4 nations of the UK

#### 4.4 Publication

This work was submitted to the *Journal of Military, Veteran and Family Health* on 19<sup>th</sup> February, 2021 with revisions requested and submitted on 28<sup>th</sup> May, 2021, and the paper was accepted by the journal for publication on 19<sup>th</sup> August, 2021. It is in press at the time of this report.

#### 4.5 Next Steps

There were several issues with the extant literature that the UK Veterans Family Study sought to address (Table 6). These issues became key design features of the study. It was decided that the main cohort should be the intimate partners of veterans, the secondary cohort the adult children of veterans, and the tertiary cohort the veterans themselves. This design will allow for analyses on the cohort level, dyad/family level, national level, and as an all-UK sample. Open recruitment via online social media platforms, in-person events, and organisational involvement will avoid the skewed findings of a purely clinical sample.

The qualitative interview questions and the quantitative survey were designed to include multiple psychosocial determinants of psychological health and well-being, and adverse psychological constructs (anxiety, depression, etc.) as well as positive psychological constructs (emotional flexibility, general well-being, etc.). This was done to avoid the ‘trauma trap’ of focusing on the adverse to the exclusion of all else and misrepresenting the reality of veteran families. Clearly articulated definitions of eligibility were included as such definitions did vary across the 24 studies. Participants are eligible to participate if they are:

- a spouse/intimate partner of a veteran who has served at least one day in any branch of the UK Armed Forces/Reserve Forces, but no longer serves in either
- a now adult (18+years) child of a veteran who has served at least one day in any branch of the UK Armed Forces/Reserve Forces, but no longer serves in either

- a veteran who has served at least one day in any branch of the UK Armed Forces/Reserve Forces and have since left service
- meet the requirements of one of the above and are over 18 years old, currently living in Scotland, Northern Ireland, England, or Wales

While all of the 24 studies analysed in the systematic review included psychosocial determinants of psychological health and wellbeing (sociodemographics), very few included these in any meaningful analyses, only to describe their sample populations. Leading on from this the UK Veterans Family Study has actively incorporated these psychosocial determinants of psychological health and wellbeing into the study design. Understanding the needs and realities of the veteran family means understanding the family from an ecological systems perspective, at the centre of multiple influential environments. The inter-relationships of these environments and their psychosocial determinants will be able to inform this study and future research.

Finally, as the UK Veterans Family Study aims are to recruit participants from each nation for each cohort, inter-nations comparisons can be made. The recruitment goals are (noting that there may be slight uplifts in larger geographical areas compared to smaller ones):

- 500 intimate partners each from England, Scotland, Wales, and Northern Ireland
- 300 adult children each from England, Scotland, Wales, and Northern Ireland
- 200 veterans each from England, Scotland, Wales, and Northern Ireland

It is hoped that while the extant literature on the psychosocial determinants of psychological health and wellbeing in UK veteran families is quite sparse, the UK Veterans Family Study will be an opportunity to broaden this body of research, identify beneficial avenues of support, identify where need remains, and ultimately benefit the entirety of the UK veteran family community.



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# Appendices

## Appendix 1. Data extracted from results (as per Armour et al., in press)

**Table 5. Systematic data extraction**

Authors	Study Title	Journal	Country	Conflict	Response Rate	Gender Totals	Age Range or Mean†	Branch	Rank	Time In Service†
Alessi, Ray, Ray, & Stewart (2001)	Personality and psychopathology profiles of veteran's wives: Measuring distress using the MMPI-2	Journal of Clinical Psychology	United States	N/A	N/A	100% female	M = 50.3	N/A	N/A	N/A
Beks (2016)	Walking on Eggshells: The Lived Experience of Partners of Veterans with PTSD	The Qualitative Report	Canada	N/A	N/A	100% female	N/A	N/A	N/A	N/A
Calhoun, Beckham, & Bosworth (2002)	Caregiver burden and psychological distress in partners of veterans with chronic posttraumatic stress disorder	Journal of traumatic stress	United States	Vietnam	N/A	N/A	PTSD M=47.5 (SD=5.2) non-PTSD M=46.3 (SD=6)	N/A	N/A	N/A
Campbell & Renshaw (2012)*	Distress in Spouses of Vietnam Veterans: Associations With Communication About Deployment Experiences	Journal of Family Psychology	United States	Vietnam	N/A	80% female, 20% male	21-73 (M=40, SD=7.4)	N/A	N/A	N/A
Cramm et al. (2020)	Impact of Canadian Armed Forces Veterans' Mental Health Problems on the Family During the Military to Civilian Transition	Military Behavioral Health	Canada	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forrest, Edwards, & Daraganova (2018)	The intergenerational consequences of war: anxiety, depression, suicidality, and mental health among the children of war veterans	International Journal of Epidemiology	Australia	Vietnam	N/A	62% female, 38% male	M = 37.2	N/A	N/A	N/A
Gunter, O'Toole, Dadds, & Catts (2020)	Family emotional climate in childhood and risk of PTSD in adult children of Australian Vietnam veterans	Psychiatry Research	Australia	Vietnam	56%	58% female, 42% male	F= 20-60 (M=38.1), Male=24-56 (M=38.5)	N/A	N/A	N/A

Johnson, Vidal, & Flavius (2018)	Absence of a link between childhood parental military service on depression and anxiety disorders among college students	Military Medicine	United States	N/A	N/A	80% female, 19% male, 1% transgender	>18	N/A	N/A	N/A
Lee, O'Neill, Denning, Mohr, & Hammer (2020)	A Dyadic Examination of Drinking Behaviors within Military-Connected Couples	Military Behavioral Health	United States	Post-9/11	66.5%	89% female, 11% male	M=36.6 (SD=9.06)	N/A	89.1% enlisted	N/A
MacDonell, Thorsteinsson, Bhullar, & Hine (2014)	Psychological Functioning of Partners of Australian Combat Veterans: Contribution of Veterans' PTSD Symptoms and Partners' Caregiving Distress	Australian Psychologist	Australia	Vietnam (minor percent others)	N/A	100% female	43-83, M=63.89, SD=4.96	84% army, 10% air force, 5% navy, 1% other	N/A	54% <2
MacDonell, Bhullar, & Thorsteinsson (2016)	Depression, anxiety, and stress in partners of Australian combat veterans and military personnel: a comparison with Australian population norms	PeerJ	Australia	Vietnam (minor percent others)	N/A	100% female	43-83, M=60.79 (SD=5.05)	82% army, 12% air force, 6% navy	N/A	N/A
Manguno-Mire et al. (2007)	Psychological distress and burden among female partners of combat veterans with PTSD	Journal of Nervous and Mental Disorders	United States	N/A	89%	100% female	M=52 (SD=5.8)	N/A	N/A	N/A
McCormack, Hagger, & Joseph (2011)	Vicarious Growth in Wives of Vietnam Veterans: A Phenomenological Investigation Into Decades of "Lived" Experience	Journal of Humanistic Psychology	Australia	Vietnam	N/A	100% female	56-65	N/A	N/A	N/A
McCormack & Sly (2013)	Distress and growth: The subjective "lived" experiences of being the child of a Vietnam veteran	Traumatology	Australia	Vietnam	N/A	100% female	28-37	N/A	N/A	N/A
Moriarty, Winter, Short, & True (2018)	Exploration of Factors Related to Depressive Symptomatology in Family Members of Military Veterans With Traumatic Brain Injury	Journal of Family Nursing	United States	N/A	N/A	N/A	21-67	N/A	N/A	N/A
Murphy, Palmer, & Busuttill (2016)	Mental health difficulties and help-seeking beliefs within a sample of female partners of UK veterans diagnosed with post-traumatic stress disorder	Journal of Clinical Medicine	United Kingdom	N/A	N/A	100% female	M=46	84% army, 8% air force, 8% navy	7% officer	N/A

Murphy, Palmer, Hill, Ashwick, & Busuttill (2017)	Living alongside military PTSD: a qualitative study of female partners' experiences with UK veterans	Journal of Military, Veteran and Family Health	United Kingdom	N/A	N/A	100% female	30-79	87.5% army, 12.5% air force	N/A	2-38 (M=11.25)
O'Toole, Outram, Catts, & Pierse (2010)	The Mental Health of Partners of Australian Vietnam Veterans Three Decades After the War and Its Relation to Veteran Military Service, Combat, and PTSD	Journal of Nervous & Mental Disease	Australia	Vietnam	64.9%	100% female	M=57.8 (SD=7.8)	100% army	N/A	N/A
O'Toole, Orreal-Scarborough, Johnston, Catts, & Outram (2015)	Suicidality in Australian Vietnam veterans and their partners	Journal of Psychiatric Research	Australia	Vietnam	64.9%	100% female	M=57.8 (SD=7.8)	100% army	N/A	N/A
O'Toole, Burton, Rothwell, Outram, Dadds, & Catts (2016)	Intergenerational transmission of post-traumatic stress disorder in Australian Vietnam veterans' families	Acta Psychiatrica Scandinavica	Australia	Vietnam	N/A	57% female, 43% male	20-60, M=38.37 (SD=6.41)	100% army	N/A	N/A
O'Toole, Dadds, Burton, Rothwell, & Catts (2018)	Growing up with a father with PTSD: The family emotional climate of the children of Australian Vietnam veterans	Psychiatry Research	Australia	Vietnam	N/A	57% female, 43% male	20-60, M=38.37 (SD=6.41)	100% army	N/A	N/A
O'Toole, Dadds, Outram, & Catts (2018)	The mental health of sons and daughters of Australian Vietnam veterans	International Journal of Epidemiology	Australia	Vietnam	N/A	57% female, 43% male	20-60, M=38.37 (SD=6.41)	100% army	N/A	N/A
Outram, Hansen, MacDonell, Cockburn, & Adams (2009)	Still living in a war zone: Perceived health and wellbeing of partners of Vietnam veterans attending partners' support groups in New South Wales, Australia	Australian Psychologist	Australia	Vietnam	N/A	100% female	47.5-72.4 (M=57.3)	N/A	N/A	N/A
Saban et al. (2016)	The Man I Once Knew: Grief and Inflammation in Female Partners of Veterans With Traumatic Brain Injury	Biological Research for Nursing	United States	N/A	N/A	100% female	M=42.84 (SD=15.36)	N/A	N/A	N/A

†unit is in years; \*study also listed time since separation as >10 years; N/A denotes study did not record this information

## Appendix 2. Quality assessment

Table 6. Quality assessment

Authors	Pub Year	Journal	Article Title	Q1	Q2	Q3	Q4	Q5	Q6	Total
Alessi et al.	2001	Journal of Clinical Psychology	Personality and psychopathology profiles of veteran's wives: Measuring distress using the MMPI-2	1	1	1	1	0	1	5
T. Beks	2016	The Qualitative Report	Walking on Eggshells: The Lived Experience of Partners of Veterans with PTSD	1	1	1	1	0	1	5
Campbell, Renshaw, & Keith	2012	Journal of Family Psychology	Distress in Spouses of Vietnam Veterans: Associations With Communication About Deployment Experiences	1	1	1	1	1	1	6
Calhoun, Beckham, & Bosworth	2002	Journal of traumatic stress	Caregiver burden and psychological distress in partners of veterans with chronic posttraumatic stress disorder	1	1	1	1	1	1	6
Cramm et al.	2020	Military Behavioral Health	Impact of Canadian Armed Forces Veterans' Mental Health Problems on the Family During the Military to Civilian Transition	1	0	1	1	0	1	4
Forrest, Edwards, & Daraganova	2018	International Journal of Epidemiology	The intergenerational consequences of war: anxiety, depression, suicidality, and mental health among the children of war veterans	1	1	1	1	1	1	6
Gunter, O'Toole, Dadds, & Catts	2020	Psychiatry research	Family emotional climate in childhood and risk of PTSD in adult children of Australian Vietnam veterans	1	1	1	1	1	1	6
Johnson, Vidal, & Lilly	2018	Military Medicine	Absence of a link between childhood parental military service on depression and anxiety disorders among college students	1	1	1	1	1	1	6
Lee et al.	2020	Military Behavioral Health	A Dyadic Examination of Drinking Behaviors within Military-Connected Couples	1	1	1	1	1	1	6
MacDonell, Bhullar, & Thorsteinsson	2016	PeerJ	Depression, anxiety, and stress in partners of Australian combat veterans and military personnel: a comparison with Australian population norms	1	1	1	1	1	1	6



MacDonell, Thorsteinsson, Bhullar, & Hine	2014	Australian Psychologist	Psychological Functioning of Partners of Australian Combat Veterans: Contribution of Veterans' PTSD Symptoms and Partners' Caregiving Distress	1	1	1	1	1	1	6
Manguno-Mire et al.	2007	Journal of Nervous and Mental Disorders	Psychological distress and burden among female partners of combat veterans with PTSD	1	1	1	1	1	1	6
McCormack, Hagger, & Joseph	2011	Journal of Humanistic Psychology	Vicarious Growth in Wives of Vietnam Veterans: A Phenomenological Investigation Into Decades of "Lived" Experience	1	1	1	1	0	1	5
McCormack & Sly	2013	Traumatology	Distress and growth: The subjective "lived" experiences of being the child of a Vietnam veteran	1	1	1	1	0	1	5
Moriarty, Winter, Short, & True	2018	Journal of Family Nursing	Exploration of Factors Related to Depressive Symptomatology in Family Members of Military Veterans With Traumatic Brain Injury	1	1	1	0	1	1	5
Murphy, Palmer, & Busuttil	2016	Journal of Clinical Medicine	Mental health difficulties and help-seeking beliefs within a sample of female partners of UK veterans diagnosed with post-traumatic stress disorder	1	1	1	1	1	1	6
Murphy, Palmer, Hill, Ashwick, & Walter	2017	Journal of Military, Veteran and Family Health	Living alongside military PTSD: a qualitative study of female partners' experiences with UK veterans	1	1	1	1	1	1	6
O'Toole et al.	2017	Acta Psychiatrica Scandinavica	Intergenerational transmission of post-traumatic stress disorder in Australian Vietnam veterans' families	1	1	1	1	1	1	6
O'Toole, Outram, Catts, & Pierse	2010	Journal of Nervous & Mental Disease	The Mental Health of Partners of Australian Vietnam Veterans Three Decades After the War and Its Relation to Veteran Military Service, Combat, and PTSD	1	1	1	1	1	1	6
O'Toole et al.	2018	Psychiatry Research	Growing up with a father with PTSD: The family emotional climate of the children of Australian Vietnam veterans	1	1	1	1	1	1	6
O'Toole et al.	2018	International Journal of Epidemiology	The mental health of sons and daughters of Australian Vietnam veterans	1	1	1	1	1	1	6

O'Toole et al.	2015	Journal of Psychiatric Research	Suicidality in Australian Vietnam veterans and their partners	1	1	1	1	1	1	6
Outram et al.	2009	Australian Psychologist	Still living in a war zone: Perceived health and wellbeing of partners of Vietnam veterans attending partners' support groups in New South Wales, Australia	1	1	1	1	0	1	6
Saban et al.	2016	Biological Research for Nursing	The Man I Once Knew: Grief and Inflammation in Female Partners of Veterans With Traumatic Brain Injury	1	1	1	1	1	1	6

**Question 1.** Is the review based on a focused question that is adequately formulated and described?

**Question 2.** Were eligibility criteria for included and excluded studies predefined and specified?

**Question 3.** Did the literature search strategy use a comprehensive, systematic approach?

**Question 4.** Were titles, abstracts, and full-text articles dually and independently reviewed for inclusion and exclusion to minimize bias?

**Question 5.** Was the quality of each included study rated independently by two or more reviewers using a standard method to appraise its internal validity?

**Question 6.** Were the included studies listed along with important characteristics and results of each study?