



The mental health needs of serving and ex-Service personnel: A systematic review

MAIN REPORT

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¹ www.vfrhub.com

Foreword

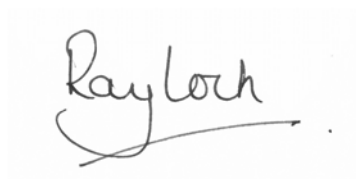
One of the first projects Forces in Mind Trust undertook was a systematic review of the research into the mental health of ex-Service personnel and their families. Since then, much has changed.

The delivery of mental health services to the Armed Forces Community has been transformed with the introduction of bespoke services and greatly increased public funding. It may not yet have recached 'Parity of esteem' level, but it has nonetheless improved significantly. At the same time, the attention paid to public mental health and wellbeing has risen, helped by such campaigns as 'Heads Together' with its Royal patronage, and the establishment of Contact, a collaboration of mental health experts working in the sector.

During the same period, Forces in Mind Trust has invested £5 million in mental health research, prioritized against that original review. This new systematic review, expertly conducted by NatCen Social Research, is therefore timely. We want to understand the environment better, and that means finding out about the prevalence of mental health issues, the experience of those suffering from them (or their family's), and the effectiveness of interventions used to treat them.

By understanding these issues, we will ensure that the next five years of our mental health research programme delivers relevant and impactful work, which improves the mental health of the Armed Forces Community. We very much hope, too, that others will use this review to inform their own approach.

There remains much to do. But the long list of recommendations at the end of this report seems eminently achievable. It requires the collaboration and determination that characterizes this particular population to be applied equally by policy makers, academics and service providers. This is your call to action.

A handwritten signature in black ink, reading "Ray Lock". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Air Vice-Marshal Ray Lock CBE
Chief Executive, Forces in Mind Trust

Contents

| | |
|--|-----------|
| Acknowledgements | 4 |
| Foreword | 5 |
| Structure of this report | 8 |
| List of abbreviations and acronyms | 9 |
| Executive Summary | 11 |
| 1 Background and review context | 19 |
| 2 Study Objectives | 20 |
| 2.1 Prevalence | 20 |
| 2.2 Experience | 20 |
| 2.3 Effectiveness..... | 20 |
| 3 Methodology..... | 22 |
| 3.1 Overview | 22 |
| 3.2 Inclusion criteria | 22 |
| 3.3 Search | 23 |
| 3.4 Screening and data extraction | 24 |
| 3.5 Synthesis | 24 |
| 3.6 Critical Appraisal | 25 |
| 3.7 Evidence Map | 25 |
| 3.8 Stakeholder interviews | 25 |
| 3.9 Advisory Group | 26 |
| 4 Results | 27 |
| 4.1 Search Results..... | 27 |
| 5 Findings: Prevalence..... | 29 |
| 5.1 Introduction and chapter overview | 30 |
| 5.2 Evidence base | 30 |
| 5.3 The prevalence of mental health conditions and behaviours | 32 |
| 5.4 Factors associated with mental health conditions and behaviours..... | 44 |
| 6 Findings: Experience..... | 48 |
| 6.1 Introduction and chapter overview | 49 |
| 6.2 Evidence base | 49 |
| 6.3 Experiences of mental health problems | 49 |
| 6.4 Help-seeking and accessing support | 56 |
| 7 Findings: Effectiveness | 68 |
| 7.1 Introduction and chapter overview | 69 |
| 7.2 Evidence base | 69 |

| | | |
|-----------|--|------------|
| 7.3 | Approach to meta-analysis | 70 |
| 7.4 | The effectiveness of interventions to address mental health outcomes | 71 |
| 7.5 | Sensitivity analysis..... | 83 |
| 7.6 | Publication bias..... | 83 |
| 7.7 | Barriers and enablers to effectiveness..... | 83 |
| 8 | Evidence Map | 88 |
| 8.1 | Introduction and chapter overview | 89 |
| 8.2 | Map findings..... | 90 |
| 9 | Stakeholder consultation | 97 |
| 9.1 | Introduction and chapter overview | 98 |
| 9.2 | Mental health services | 98 |
| 9.3 | Current and future research | 101 |
| 10 | Summary and discussion | 104 |
| 10.1 | Summary of main findings | 104 |
| 10.2 | Recommendations for research and commissioning | 110 |
| 10.3 | Implications and recommendations for policy and practice | 110 |
| 10.4 | Conclusion | 111 |
| 11 | References | 113 |
| 11.1 | References cited in body of the report | 113 |
| 11.2 | Studies providing evidence on prevalence..... | 116 |
| 11.3 | Studies providing evidence on experience..... | 119 |
| 11.4 | Studies providing evidence on effectiveness | 122 |
| 11.5 | Studies included in the evidence map..... | 129 |

Structure of this report

The report begins with an Executive Summary designed to provide an overview of the research, its objectives, methodology and its findings. Chapter 1 provides a short contextual overview and we set out research questions in Chapter 2. The methodological approach to the study is outlined in Chapter 3. Chapter 4 explains how we arrived at our final list of included studies. Specific findings are presented in the remaining chapters. Prevalence of mental health problems in UK serving and ex-Service personnel and their families is considered in Chapter 5. The experience of mental health conditions and behaviours amongst UK serving and ex-Service personnel is considered in Chapter 6. International evidence relating to the effectiveness of service provision is considered in Chapter 7. In Chapter 8 an evidence map provides a visual overview of the studies relating to the effectiveness of service provision. Evidence from interviews with key stakeholders is presented in Chapter 9. A summary of findings and discussion of key implications and recommendations is outlined in Chapter 10 of the report. We then provide lists of all included studies in our references. A separate Technical Annex (Phillips et al. 2020b) provides additional methodological detail not included in this report.

List of abbreviations and acronyms

| | |
|---------|--|
| 3MDR | Motion-assisted, Multi-modular Memory Desensitization and Reprocessing |
| APMS | Adult Psychiatric Morbidity Survey |
| AUDIT | Alcohol Use Disorder Identification Test |
| BDI | Beck's Depression Inventory |
| BESD | Binomial Effect Size Display |
| BSI | Brief Symptom Inventory |
| CAM | Complementary and Alternative Therapy |
| CBT | Cognitive Behavioural Therapy |
| CI | Confidence Interval |
| CMD | Common Mental Disorder |
| CPTSD | Complex Post-Traumatic Stress Disorder |
| CTS | Complex Treatment Service |
| DAR-5 | Dimensions of Anger Reactions-5 |
| DCMH | Department of Community Mental Health |
| EMDR | Eye Movement Desensitisation and Reprocessing |
| ESL | Early Service Leaver |
| FiMT | Forces in Mind Trust |
| FiMT RC | Forces in Mind Trust Research Centre |
| GSI | Global Severity Index |
| IAPT | Improving Access to Psychological Therapies |
| ICD | International Classification of Diseases |
| IPS | Individualised Placement and Support |
| KCMHR | King's Centre for Military Health Research |
| MBSR | Mindfulness-based Stress Reduction |
| MDMA | Methylenedioxymethamphetamine |
| MHF | Mental Health Foundation |
| MOD | Ministry of Defence |

| | |
|-------|--|
| MOs | Medical Officers |
| mTBI | Mild Traumatic Brain Injury |
| PCT | Present-Centred Therapy |
| PE | Prolonged Exposure |
| PIEDs | Performance and Image Enhancing Drugs |
| PSM | Propensity Score Matching |
| PTSD | Post-Traumatic Stress Disorder |
| RCT | Randomised Controlled Trial |
| SMD | Standardised Mean Difference |
| STS | Secondary Traumatic Stress |
| TBI | Traumatic Brain Injury |
| TILS | Veterans' Mental Health Transition, Intervention and Liaison Service |
| TLD | Third Location Decompression |
| TRiM | Trauma Risk Management |
| UWOs | Army Unit Welfare Officers |
| VFR | Veterans and Families Research |
| VUP | Veterans' Universal Passport |

Executive Summary

Background

In 2018, Forces in Mind Trust (FiMT) commissioned The National Centre for Social Research to conduct a systematic review of evidence on the mental health needs of serving and ex-Service personnel and their families, building on a previous FiMT-funded review by the Mental Health Foundation (MHF, 2013).

The context in which this report is written is a complex one; in recent years the size of the UK Armed Forces has been reduced, as has military expenditure (Dempsey, 2018). Meanwhile, the last two decades have seen the British Armed Forces involved in various military operations, including those in Iraq and Afghanistan. While many military personnel have a positive experience of their time in the Armed Forces, others are affected by a range of mental health conditions and there has been a significant increase in the numbers of Service personnel reporting mental health conditions in recent years (MoD, 2018b). In 2019, the Parliamentary Defence Committee reported that despite improvements in mental health service provision, some serving and ex-Service personnel and their families are not adequately served by the system (HoC, 2019).

Aims

The aim of the review was to bring together evidence to support FiMT's Mental Health Research Programme, as well as to provide a resource to inform wider research, policy and practice by exploring:

- The **prevalence** of mental health problems among serving and ex-Service personnel and their families.
- The **experience** of mental health problems among serving and ex-Service personnel and their families.
- The **effectiveness** of interventions to support the mental health needs of serving and ex-Service personnel and their families.

Method

The methodology used was a systematic review. Key steps in the review process included a systematic search for relevant studies, a screening stage to make sure only relevant studies were included, extraction of data, critical appraisal to assess the quality of study sources, and evidence synthesis.

As the review is intended to update the MHF (2013) review, it is limited to published and unpublished studies² that were completed between October 2012 and September

² We included both 'published' literature from journals and 'grey' or unpublished literature such as reports, working papers, government documents, white papers and evaluations.

2018.³ Studies included in the review use a range of research methods including surveys, qualitative studies, quantitative causal studies (impact evaluations)⁴ and evidence reviews. Findings on the prevalence and experience of mental health problems amongst serving and ex-Service personnel are based on studies from the UK only. Findings on the effectiveness of interventions are based on UK and international studies, as there is limited literature exploring intervention effectiveness here in the UK.⁵

The report includes a visual map which provides an overview of evidence on the effectiveness of interventions designed to address mental health needs. The review is also substantiated by findings from interviews with key stakeholders from the Ministry of Defence (MOD), NHS England, Veterans' NHS Wales, veteran and mental health charities and academic institutions.

At the time of the systematic search for this review, some of the more recent initiatives to help address the needs of serving and ex-Service personnel, such as the Office for Veterans Affairs and the Defence Transition Holistic Services, had not been put into place.

Findings

Prevalence

Thirty-seven studies included in the review explore the prevalence of mental health problems (conditions or behaviours) among UK serving and ex-Service personnel and their families. Most of this evidence examines prevalence rates amongst men who are serving or ex-Service personnel, while the evidence is more limited for women, Reservists, military families and Early Service Leavers (ESLs).

Common Mental Disorders (CMDs), such as depressive and anxiety disorders, continue to be the most prevalent mental health conditions identified in UK serving and ex-Service personnel, with higher prevalence rates than among the general population. The rates of Post Traumatic Stress Disorder (PTSD) have remained relatively stable since 2004 for serving personnel and the condition is less prevalent for serving personnel compared with ex-Service personnel. The prevalence of mental health problems is typically higher for serving and ex-Service personnel who have been deployed and especially those who have experienced combat.

Concerning suicide, evidence suggests that the risk of suicide is lower for serving personnel than for members of the general population. For ex-Service personnel and ESLs, however, the evidence is less clear – there are some indications of higher rates

³ To provide a period of overlap with the MHF review, we included any study published from October 2012 on - with one exception. For research question on the effectiveness of interventions we included evaluations published after the MHF (2013) review was completed and impact evaluations included in the MHF review.

⁴ Includable 'impact evaluation' study designs were limited to experimental and quasi-experimental approaches such as randomised controlled trials or studies employing statistical matching.

⁵ In total, 190 studies met the study inclusion criteria. This included 30 primary studies and 7 reviews reporting on mental health prevalence, 36 primary studies and 2 reviews reporting on experience, and 82 impact evaluations, 13 ongoing impact evaluations and 24 reviews reporting on intervention effectiveness⁵.

of suicide in military veterans than in the general population, but none that are statistically significant.⁶

There is evidence that some pre-Service factors are associated with later mental health problems. These include adverse childhood experiences (e.g. being physically abused by a parent or caregiver or having a parent with drug or alcohol problems), as well as a history of anti-social behaviour, getting into trouble with the police, aggression, and violence.

Evidence also shows associations between a range of demographic factors and the risk of developing a mental health condition or behaviour (e.g. being younger, female, single or unemployed); and an association (or co-morbidity) between different mental health conditions and behaviours (e.g. having PTSD is associated with alcohol misuse).

Experience

Thirty-eight studies explore the experience of mental health problems in UK serving and ex-Service personnel and their families. This evidence focuses on personnel transitioning to civilian life or ex-Service personnel, rather than serving personnel. Again, most studies focus on men, with a limited evidence base on the experience of women, families, Reservists or ESLs.

Deployment and combat are strong predictors of later mental health problems. Work culture and environment in Service are also found to be important determinants of poor mental health, with workload, and peer and leadership support mentioned as key themes. Transition to civilian life is often associated with difficulties in adjusting and problems are more likely to occur in those who have been medically discharged or have combat experience. Common adjustment difficulties include a reduction in social participation, feelings of being isolated or misunderstood, relationship breakdown, and maladaptive coping mechanisms such as alcohol misuse and aggression. These problems adjusting to civilian life can have a significant impact on interpersonal relationships and on the mental health of partners, families and caregivers.

There is limited evidence on the experience of serving personnel disclosing a mental health condition to colleagues, families or friends, but research does show serving personnel are less likely to seek help for mental health problems than for issues considered to be strictly 'physical'. Importantly, the evidence indicates unit cohesion can support higher levels of disclosure, with personnel more likely to disclose when they feel solidarity with their unit colleagues and leadership. Serving personnel are more likely to seek help from friends or colleagues than through the unit chain of command, welfare staff, or medical services.

Mental health stigma is a recurring theme among both serving and ex-Service personnel and is often linked to perceived norms of behaviour in the military as well as

⁶ Statistical significance is the likelihood that a relationship between two or more variables is caused by something other than chance alone. A difference is statistically significant if we would expect to observe the difference in 95 out of 100 random samples from the population.

the idea that disclosure may have career limiting impacts. In veterans, this can manifest itself in taking considerable time before seeking help.

Other key barriers to seeking help include: a culture of self-sufficiency, resilience and duty; a perception that the military does not do enough to acknowledge problems such as PTSD, or to promote and provide support; a lack of awareness of possible symptoms of mental health problems; concerns around confidentiality and fear that disclosure may affect careers; the challenge of both identifying treatment options and of accessing support after Service ends; and difficulties attending appointments.

Key enablers include: obtaining a clear diagnosis; being given autonomy over treatment plans and whether to disclose their mental health condition; flexibility of treatment options; tailored support offering expertise in typical Service-related mental health conditions, such as CMDs, support that takes account of military culture and terminology; and anti-stigma education and campaigns.

The families of serving and ex-Service personnel face similar challenges to those experienced by military populations, including stigma, concerns around confidentiality, and practical issues such as difficulty attending appointments due to childcare or getting time away from work.

Effectiveness

We identified 82 impact evaluations⁷ that estimate the effect of interventions to address mental health needs in serving and ex-Service personnel and their families. Included impact evaluations cover military populations from a range of countries.⁸ The evidence largely focuses on ex-Service personnel from the US, with relatively little evidence from other countries.⁹

Where results of a meta-analysis are statistically significant, we also report the estimated impact as a standardised percentage to aid interpretation. These are calculated using a 'binomial effect size display' (BESD) (Randolph and Edmondson, 2006). BESD are statistical constructs that rely on various assumptions. They are presented only to convey a more intuitive measure of the size of reported effects and should be interpreted cautiously.

Several intervention types were identified as having, on average, a positive impact on mental health. It is important to note that interventions can be more or less effective across studies and contexts and the findings presented here estimate the average effect across such studies. The term 'on average' is language used as standard in meta-analyses conducted for the Campbell Collaboration.¹⁰ Reporting in this way is

⁷ Two employ a Propensity Score Matching approach (PSM), 80 are Randomised Controlled Trials (RCTs).

⁸ As we expected to find only a small UK literature exploring intervention effectiveness, we also included impact evaluations of interventions from countries deemed similar to the UK. We included studies from Australia, Canada, Denmark, France, Germany, Israel, Netherlands, New Zealand, Norway, Sweden, the UK and U.S.A. The list of countries was drawn up with advice from the review's advisory group.

⁹ Evidence from these studies was synthesised using statistical meta-analysis. For each meta-analysis, we report Standardised Mean Differences (SMDs) as measures of the effect of a specified intervention on an outcome of interest. We also convert SMDs into percentage changes⁹ to aid interpretation of the results of the meta-analysis

¹⁰ <https://campbellcollaboration.org/>

important, as intervention effects vary between studies within a meta-analysis. For example, even if an intervention is ineffective on average, it may be effective in some studies or contexts.

Cognitive Behavioural Therapy (CBT) is effective at reducing difficulties with sleep (SMD 1.13 or an approximate reduction of 24.6%) as well as symptoms of stress and associated disorders including PTSD (SMD 0.80 or a reduction of 18.5%). There is also evidence that CBT can improve outcomes such as mood disorders, anxiety and fear, and other mental health outcomes, though these findings are not statistically significant.¹¹

Meditation and mindfulness interventions (including yoga and breathing techniques) are effective at addressing symptoms of stress, including PTSD (SMD 0.74, or a reduction of 17.4%), anxiety and fear (SMD 0.73, or a reduction of 17.2%), physical health and wellbeing (SMD 0.58, or an improvement of 13.8%) and mood disorders (0.42, or a reduction of 10.3%). There is also some evidence that meditation and mindfulness interventions may improve sleep quality and other mental health outcomes, though these effects are not statistically significant.

Medication may be effective for some outcomes, such as stress, and other associated disorders including PTSD, mood disorders and substance use or addiction (not statistically significant). However, there is also evidence which indicates that on average medication is ineffective at reducing sleep disturbance for Service and ex-Service personnel.

Substance misuse and gambling interventions can reduce substance use or addiction (SMD 0.14, by 3.6%). In contrast to this, advice and support interventions were not found to improve the following outcomes: physical health and wellbeing; stress and associated disorders including PTSD, mood disorders, suicide, self-harm, substance use or addiction; and other mental health-related outcomes.

We also explored the effectiveness of other interventions (such as wellbeing interventions and family therapy). Whilst the evidence base for these interventions was small, these analyses have broadly positive findings. For example, wellbeing interventions (such as exercise or arts) appear to improve physical health and wellbeing (not statistically significant). These interventions may also improve mood disorders (not statistically significant), but there is evidence that indicates they are ineffective for stress and associated disorders and for other mental health outcomes. Family therapy may improve self-esteem and reduce loneliness, but there is no evidence to indicate that it improves mood disorders. Conversely, other therapeutic interventions, such as attention bias modification treatment and virtual reality exposure therapy, may have a negative impact on some mental health outcomes, including stress or mood disorders.

At the time of our systematic search, we did not find any evidence on the effectiveness of Eye Movement Desensitisation and Reprocessing (EMDR) or psychoanalysis,

¹¹ Statistical significance is the likelihood that a relationship between two or more variables is caused by something other than chance alone. A difference is statistically significant if we would expect to observe the difference in 95 out of 100 random samples from the population.

though we did identify some ongoing studies during the period of this study on the treatment interventions, EMDR and 3MDR, that may soon add to the evidence base.

Two studies investigate the effect of resettlement (such as third location decompression) on stress and associated disorders including PTSD. On average these studies find small but statistically significant reductions in symptoms of stress (SMD 0.08, 1.9%).

Studies of UK military populations highlight some important barriers to intervention effectiveness: interventions can suffer from low levels of take-up due to lack of interest or apprehension about participating; attitudes to mental health can take time to change, therefore short-term interventions may have limited effectiveness; and intervention effectiveness may be limited if target groups include individuals with no mental health problems, or if programmes designed for all personnel include those with particularly complex or severe symptoms. Finally, adapting interventions from the US or other non-UK countries can be problematic as organisational and cultural differences may mean such interventions may not work as effectively for the UK military and veteran context.

Implications and recommendations

Recommendations for research and research commissioning

The review identified the following key evidence gaps that should be the focus of future research and research commissioning:

- Greater use of existing administrative data capturing mental health problems in veterans could help provide more valid estimates of prevalence and reduce the cost of carrying out research. However, serving and ex-Service personnel would need to be better identified in health records. This would need to be considered against the wishes of those who may not wish to be identified based on their Service.
- Greater focus of research on the impact of mental health problems on serving and ex-Service personnel's wellbeing and functioning (e.g. relationships, housing, employment, finances).
- Accurately recording data on mental health problems by controlling for social and demographic characteristics (e.g. when reporting on suicide rates).
- Building more evidence on the experience of specific sub-groups, specifically: ex-Service personnel, female Service personnel, military families, Reservists, and Early Service Leavers.
- Building an understanding of the relationship between pre-Service experiences and mental health problems in- and post-Service.
- Increasing the currently limited evidence on effective interventions to target specific mental health-related problems in the UK, including innovative interventions such as behavioural activation therapy and EMDR, and interventions addressing mental health that are designed to help with resettlement, accommodation, education and employment. Few evaluations explore the impact of interventions on 'early outcomes', such as rates of help-seeking or completion of treatment or the

effectiveness of mental health interventions on other later outcomes, such as education or employment.

Stakeholders also emphasised the value of building the evidence base on sexual victimisation and harassment, bullying and discrimination, conditions arising from military experience (e.g. adjustment disorders and moral injury), and on co-morbidities between mental and physical health conditions.

Implications and recommendations for policy and programming

The findings of the systematic review and stakeholder interviews suggest the following recommendations for policy and programming:

- The need for investment in the early identification of individuals ‘at risk’ and early intervention to help prevent escalation of mental health problems. Assessment models capturing the relationship between pre-Service experiences and mental health problems in military personnel could help in the identification process.
- The need for enhanced services designed to prevent the escalation of mental health problems for ex-Service personnel.
- Increased information and education on mental health to support help-seeking serving and ex-Service personnel and their families, as well as better signposting to services.
- Improved awareness amongst healthcare professionals of both the needs of serving and ex-Service personnel, and their entitlement to support. There is evidence that veterans are not always informed of their entitlement to priority healthcare access for conditions associated with their time within the Armed Forces under the Armed Forces Covenant.¹² Stakeholders recommended that Armed Forces service should be recorded in national healthcare records, and that, at point of accessing support, help-seekers should be asked whether they have served to ensure that appropriate veteran-specific services can be provided.
- Addressing stigma. Anti-stigma and mental health education campaigns are perceived positively by military personnel. Potential solutions offered by stakeholders included identification of ‘at risk’ individuals and offers of coaching to address concerns relating to career impacts.
- Formal systems to manage transition to civilian life. There can be a lack of connectivity between in-Service and civilian services that undermines continuity of care and means some individuals can be left without support. Stakeholders’ recommendations included systematic provision of information on the mental health services available to ex-Service personnel, a formal transition service to ensure that treatments are continued on leaving the Service, and mentors to assist with arranging and attending medical appointments. Stakeholders also noted that military populations transitioning rapidly (for example, due to medical discharge) to

¹² Priority is not available for all veterans from the NHS – only those in England, Scotland and Wales for service attributable conditions subject to clinical need. There is no priority for the families of veterans.

civilian life may be 'high-risk' and that support would be particularly beneficial for such groups.

- The importance of co-ordinated service provision. Given the complex system of treatment services available, stakeholders suggested that a central, co-ordinating body should be created to improve connectivity between mental health support providers. It was suggested that co-ordination could be further strengthened by introducing a single point of contact or reference to help veterans navigate services in an integrated way.

1 Background and review context

The context in which this report is written is a complex one; in recent years the size of the UK Armed Forces has been reduced, as has military expenditure (Dempsey, 2018). Meanwhile, the last two decades have seen the British Armed Forces involved in various military operations, including those in Iraq and Afghanistan. While many military personnel have a positive experience of their time in the Armed Forces, others are affected by a range of mental health problems and there has been a significant increase in the numbers of Service personnel reporting mental health problems in recent years, from 1.8% in 2007–08, to 3.1% in 2017–18 (MoD, 2018b). In 2019, the Parliamentary Defence Committee reported that despite improvements in mental health service provision, some serving and ex-Service personnel and their families are not adequately served by the system (HoC, 2019).

In this systematic review¹³, we draw together a range of recent evidence on the mental health needs of serving and ex-Service personnel and their families. The review updates the work of a previous review on the mental health of military personnel, undertaken by the Mental Health Foundation (2013) and funded by the Forces in Mind Trust (FiMT), and consequently draws largely on an evidence base published between October 2012 and September 2018. The overarching goal of the review is to bring together evidence to inform FiMT’s Mental Health Research Programme, as well as to provide a resource to inform wider research, policy and practice.

The review brings together a wide range of evidence, synthesising the findings of a range of literature and drawing on expert opinions. The research is structured around three research objectives or key domains of interest:

- The **prevalence** of mental health problems among serving and ex-Service personnel and their families.
- The **experience** of mental health problems among serving and ex-Service personnel and their families.
- The **effectiveness** of interventions to support the mental health needs of serving and ex-Service personnel and their families.

We present an **evidence map** to provide a visual overview of evidence on the effectiveness of interventions designed to address mental health needs. Finally, we present the results of a set of **interviews with key stakeholders** from the Ministry of Defence (MOD), NHS England, Veterans’ NHS Wales, veteran and mental health charities and academic institutions.

¹³ “Systematic reviews use a transparent and systematic process to define a research question, search for studies, assess their quality and synthesize findings qualitatively or quantitatively.” (Armstrong et al., 2011, p. 147)

2 Study Objectives

The systematic review is driven by the following research questions, structured around our key research objectives or domains of interest: prevalence; experience; and effectiveness.¹⁴

2.1 Prevalence

Research question 1: What is the prevalence of mental health conditions among UK serving and ex-Service personnel and their families, including comparisons with the general population?

Research Question 1a: How does prevalence differ between different populations of interest¹⁵ and what factors explain variations in the prevalence of mental health problems and related needs?

Research Question 1b: To what extent are mental health problems the result of pre-service factors or a consequence of experiences before, during or after Service?

2.2 Experience

Research Question 2: What is the experience of mental health problems among UK serving and ex-Service personnel and their families?

Research Question 2a: How do experiences during and after military service affect mental health problems among UK former and current Service personnel and their families?

Research Question 2b: What evidence is there regarding experiences of help-seeking and disclosure of mental health problems, and of access to mental health services?

Research Question 2c: What evidence is there regarding experiences of mental health stigma and/or other barriers or enablers to seeking treatment or support?

2.3 Effectiveness

Research Question 3: What is the effectiveness of interventions to support the mental health needs of serving and ex-Service personnel and their families?

¹⁴ These research questions are consolidated versions of the original research questions presented in our protocol, which is available on request from the authors.

¹⁵ Relevant populations were deemed to be any included in the 'Armed Forces Community', defined in MOD (2018b) as including Serving personnel, Regulars and Reservists, Veterans and military families.

Research Question 3a: What evidence is there for barriers and enablers relating to the effectiveness of mental health interventions for UK serving and ex-Service personnel and their families?

2.3.1 Evidence map

Research Question 4: Which types of intervention to support mental health needs of serving and ex-Service personnel and their families are relatively well-evidenced and are there evidence gaps?

3 Methodology

3.1 Overview

The methodology was that of a systematic review. Key steps in the systematic review process included a systematic search and assessment for inclusion of relevant studies, extraction of relevant data and critical appraisal to assess the quality of study sources, then evidence synthesis.

In the rest of this chapter, we briefly summarise our methodology for the review's key steps: search, screening, data extraction, critical appraisal and synthesis. We also report brief details on the methodology for stakeholder interviews and evidence map. A more detailed description of all methodological considerations can be found in the review's Technical Annex (Phillips et al., 2020b).

3.2 Inclusion criteria

To be included in the systematic review, studies had to meet inclusion criteria. A full summary of our inclusion criteria can be found in the Technical Annex (Phillips et al. 2020b), Chapter 1.

3.2.1 General inclusion criteria

We included both peer-reviewed and unpublished 'grey' literature¹⁶, published in English. Our general inclusion criteria also covered the following:

We included studies that provide evidence relating to any population included in the 'Armed Forces Community', defined in MOD (2011) as including Serving personnel, Regular and Reservists, Veterans and military families.

We define mental health problems as incorporating both mental health conditions (based on the International Classification of Diseases-11 [WHO, 2018]) and mental health-related behaviours, such as problem gambling, violence, suicide and self-harm.

3.2.2 Domain-specific inclusion criteria

As the three domains of evidence (i.e. prevalence, experience and effectiveness) require different types of evidence, we set out specific inclusion criteria for each of them:

¹⁶ We included both 'published' literature from journals and 'Grey' or unpublished literature, such as reports, working papers, government documents, white papers and evaluations

Table 3.1: Review domains and inclusion criteria¹⁷

| | Prevalence | Experience | Effectiveness and evidence map |
|----------------------------|--|---|---|
| Date of publication | October 2012 onwards. ¹⁸ | October 2012 onwards. | October 2012 onwards or studies included in the MHF (2013) review that met all other criteria this domain. |
| Setting | UK-based evidence | UK-based evidence | UK-based evidence and primary studies from Australia, Canada, Denmark, France, Germany, Israel, Netherlands, New Zealand, Norway, Sweden and U.S.A, and reviews or meta-analyses synthesising international literature. ¹⁹ |
| Focus | Prevalence rates of mental health conditions and/or behaviours. | Experiences of seeking and/or accessing treatment, stigma or other barriers and enablers to seeking treatment, disclosure or other factors. | Impact of a specific intervention, service or programme designed to address any mental health conditions and behaviours. |
| Study design | Systematic reviews or meta-analyses, prospective and retrospective cohort studies, case-control studies and cross-sectional studies. | Systematic reviews, quantitative, qualitative or mixed-methods studies. | Systematic reviews and meta-analyses, experimental or quasi-experimental designs only. |

3.3 Search

We searched academic databases and websites/online repositories to locate studies that met our inclusion criteria. A list of those searched and the dates when they were searched is provided in Technical Annex (Phillips et al. 2020b) Chapter 1, along with our search terms. We also contacted experts and organisations with a request to share references for relevant recently published or ongoing work and undertook forwards and backwards citation tracking²⁰ of key literature.

The search was undertaken between July and September 2018, therefore does not comprehensively capture evidence published after this date. However, as research in this area is constantly evolving, the review incorporated important pieces of research published after the systematic searches were complete, including results from Phase 3

¹⁷ A single study could be included for multiple domains, provided it met all relevant inclusion criteria.

¹⁸ The October 2012 cutoff was chosen as this systematic review updates a previous review by the Mental Health Foundation (2013). The MHF review included evidence produced up to November 1st, 2012 and so we allowed for a small overlap between the two reviews.

¹⁹ As we expected to find only a small UK literature exploring intervention effectiveness, we also included impact evaluations of interventions from countries deemed similar to the UK. The list of countries was drawn up with advice from the review's advisory group.

²⁰ Backwards: Checking reference lists of included or potentially includable studies to find further eligible studies. Forwards: Searching for a paper in Google Scholar yields a list of studies that have cited that paper. These are then screened for inclusion.

of the 'Health and Wellbeing of UK Armed Forces Personnel' cohort study run by the King's College Military Health Cohort Study (KCMHR), part of King's College London.²¹

3.4 Screening and data extraction

All search results were screened at title and abstract and then at full-text. We used dedicated systematic review software (Abstrackr²²) to help us streamline the screening process. The software uses machine-learning algorithms to learn from inclusion and exclusion decisions and prioritises the most relevant studies for screening (Gates et al. 2018). Of the 11,353 results that our search returned, we screened 8,614 results – we stopped screening results in Abstrackr when the last 100 hits that were screened no longer returned any includable studies. See Chapter 5 of this report for an overview of the number of studies screened at each stage.

Technical Appendix Chapter 1 contains the tools used to extract data and critical appraisal tools used to assess the quality of included studies. See Chapter 5 for the results of the critical appraisal.

3.5 Synthesis

We adopted different approaches to synthesis to reflect the different types of included studies and research questions.

3.5.1 Prevalence

For the prevalence domain, we narratively synthesised evidence on the prevalence rates for different mental health conditions and behaviours by population of interest. For each condition or behaviour, we present a range of prevalence rates reported and highlight rates from recent studies that aim to provide representative samples (for example, by taking a random sample of serving or ex-Service personnel). We also synthesised evidence relating to factors associated with mental health conditions and behaviours, including the extent to which they may be linked to pre-Service factors.

3.5.2 Experience

For the experience domain, data was extracted from all included studies into an analytical framework built around our research questions. Findings were then synthesised narratively by population group, to distinguish between serving and ex-Service personnel and their families, as well as by theme, to draw out the key findings in relation to the experiences of mental health problems and help-seeking.

3.5.3 Effectiveness

Studies included in the effectiveness domain were mapped according to the interventions and outcomes that they report on. We then undertook statistical meta-

²¹ Any piece of research included after our search was completed had to meet the review inclusion criteria.

²² www.abstrackr.cebm.brown.edu

analysis to combine the findings of studies evaluating similar interventions and outcomes, drawing on the International Classification of Diseases (ICD)-11 (WHO, 2018), to do so. We combined studies using meta-analysis only when we identified two or more studies evaluating a similar intervention and reporting effect sizes employing similar outcome constructs and comparing them to similar comparison groups, following Borenstein et al. (2017). Where possible, the sensitivity of results to critical appraisal (risk of bias) rating and to length of follow-up were tested through sensitivity analyses. In addition, sub-group analysis of different population groups of interest (e.g. serving regulars, veterans etc.) were conducted where possible, to explore if effects varied.

Where there were not enough studies or they were too different to be combined in a meta-analysis, we report their findings narratively and in data tables. We also provide a separate summary exploring barriers and facilitators to the effectiveness of interventions targeting UK populations. For a more detailed summary of the approach to synthesis for the Effectiveness domain, see Technical Annex (Phillips et al. 2020b), Chapter 1.

If the publication or non-publication of studies depends on the nature or direction of the results, this can introduce bias to meta-analyses. To test for publication bias, this review adopts the ‘tandem procedure’ outlined in Ferguson and Brannick (2012). Further details can be found in the Technical Annex (Phillips et al. 2020b).

3.6 Critical Appraisal

The study team critically appraised the quality of all studies included in the review. Full details of the process, results and tools used for the critical appraisal are presented in the Technical Annex (Phillips et al. 2020b), Chapter 1.

3.7 Evidence Map

The evidence map provides a visual overview of the evidence included in the effectiveness domain – that is, evidence that can tell us something about interventions, services and treatments aiming to promote, detect, prevent and address mental health and related needs of serving and ex-Service personnel and their families. To be included in the map, studies had to meet all general and effectiveness-domain inclusion criteria. We also included study protocols for ongoing studies that evaluate this type of intervention. The Technical Annex (Phillips et al. 2020b) in Chapter 3 provides a more detailed summary of the map methodology.

3.8 Stakeholder interviews

Interviews with key stakeholders from the MOD, NHS England, Veterans’ NHS Wales, veteran and mental health charities and academic institutions were undertaken to draw on participants’ expert knowledge of the area. Interviewees read a summary of some of the draft findings of the systematic review prior to the interviews.

Fifteen telephone interviews were conducted with stakeholders. Calls were recorded, then detailed fieldnotes were taken and incorporated into a framework to enable analysis and to draw out the key findings in relation to the findings of the review, provision of mental health services, and areas for further research. The Technical Annex (Phillips et al. 2020b) provides detail on sampling, recruitment, data management and analysis.

3.9 Advisory Group

The review's advisory group provided comments at protocol and draft report stages. For a full list of participants, see the Acknowledgements section of this report.

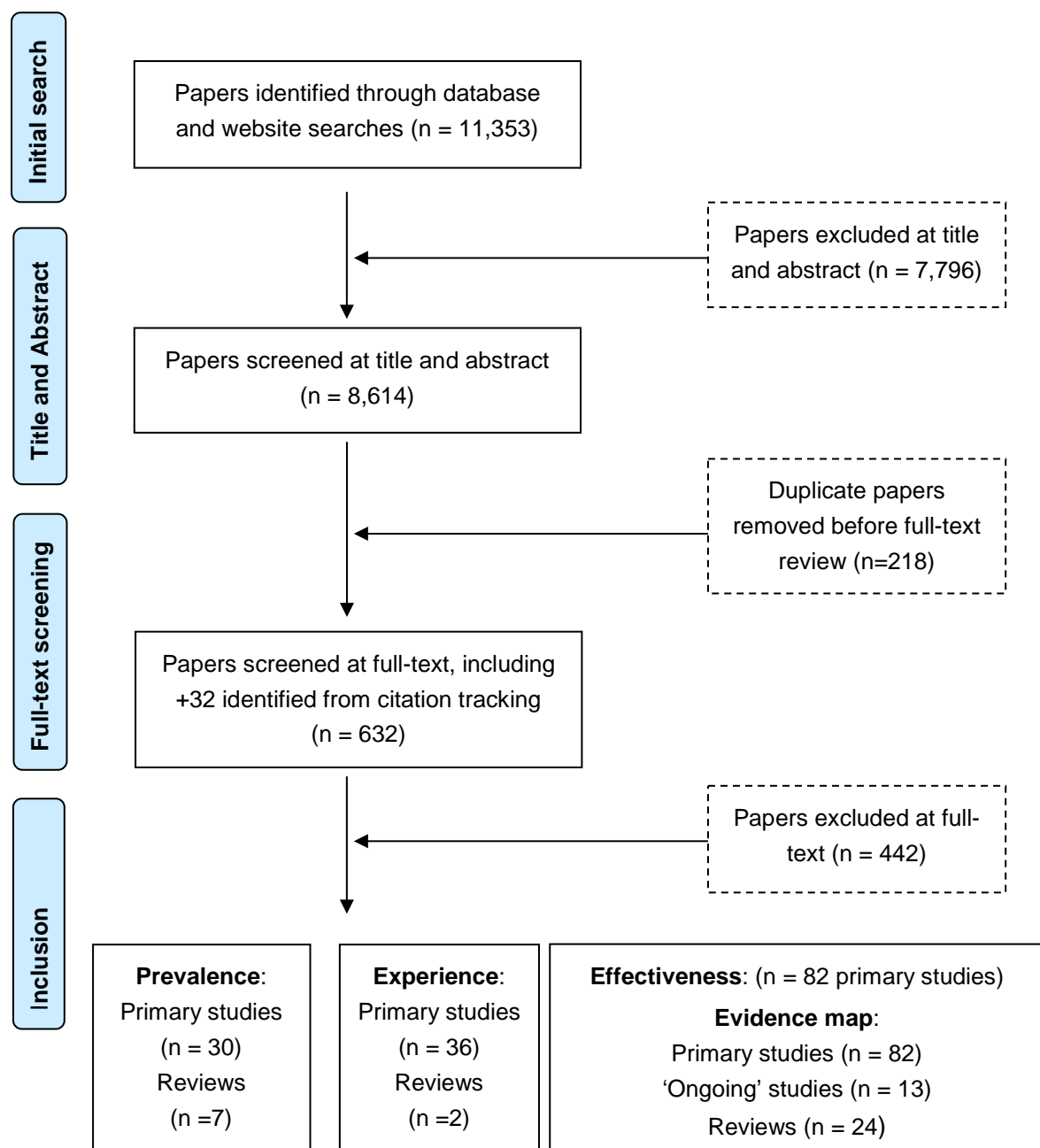
4 Results

This chapter provides an overview of the results of the review's search and screening process, including how many studies were screened and ultimately included in the review.

4.1 Search Results

Figure 4.1 summarises the systematic search and screening process using a PRISMA (Preferred Reporting Items of Systematic reviews and Meta-Analyses) flowchart depicting the process of identifying, screening and including relevant studies.

Figure 4.1: PRISMA flowchart



Database and website searches returned a total of 11,353 results, of which we screened 8,614 after prioritisation of relevant studies using Abstrackr²³ (See Chapter 3 on Methodology for an overview of our search, inclusion criteria and screening process, and the Technical Annex (Phillips et al. 2020b) for more detailed methodology). Based on the inclusion criteria, a total of 818 studies were then carried forward to be screened at full-text. Prior to full-text screening, duplicates were removed from the database results (n=218) and forwards and backwards citation tracking²⁴ was carried out to search for additional studies from key literature, adding 32 studies to the total. As a result, 632 studies were reviewed at full-text. We included 37 studies in our Prevalence domain, 38 in Experience, and 82 primary studies in Effectiveness,²⁵ along with 24 reviews.²⁶ An evidence map was created from all studies that met the inclusion criteria for the Effectiveness domain of the review, and studies that were identified through a search for ongoing studies (see Chapter 3, Methodology). The map provides a visual overview of the evidence on effectiveness of interventions to address the mental health of serving and ex-Service personnel and their families. In total, it incorporates 119 studies, including: 82 impact evaluations, 13 ongoing impact evaluations, and 24 evidence reviews and meta-analyses.

Overall, our review as a whole includes 190 separate studies, including those in the evidence map.²⁷ Lists of all included studies can be found in Chapter 11, References.

²³ www.abstrackr.cebm.brown.edu

²⁴ Backwards citation tracking: Checking reference lists of included or potentially includable studies to find further eligible studies. Forwards: Searching for a paper in Google Scholar yields a list of studies that have cited that paper. These were then screened for inclusion.

²⁵ While the total number of papers included for Effectiveness is 81, the number of studies for this domain is 82, as one paper contained two studies. A 'paper' is interpreted to mean an individual publication. A 'study' is interpreted to mean an analysis of a unique dataset. Thus, a paper may include multiple studies.

²⁶ We do not report findings from the 24 reviews, but they were screened for includable primary studies and any such studies meeting our inclusion criteria are included in the synthesis.

²⁷ There are four studies that appear in both the prevalence and experience chapters.

5 Findings: Prevalence

Chapter highlights

Overview:

30 primary studies and 7 evidence reviews report on the prevalence of mental health conditions and behaviours across serving and ex-Service populations, and their families with few mentioning the specific sub-groups of Reservists, Women, and Early Service Leavers.

Key findings:

- Common Mental Disorders (CMDs), anxiety and fear-related disorders, and PTSD continue to be some of the most common mental health conditions identified in UK serving and ex-Service personnel.
- There is a large body of evidence indicating that alcohol misuse is common for both serving and ex-Service personnel.
- There is evidence of lower risk of suicide for serving personnel than for members of the general population. For ex-Service personnel, the evidence is less clear – with some indications of higher rates of suicide in military veterans than in the general population, but none that are statistically significant.
- There is limited evidence on the prevalence of mental health conditions, such as adjustment disorder, personality disorder and schizophrenia. The evidence base is also limited for the prevalence of anger problems, drug misuse and addictive behaviours, such as gambling, across all populations of interest.
- The prevalence of mental health conditions and behaviours tends to be higher for deployed military personnel, in particular those who have experienced combat. Pre-Service adversity, anti-social behaviour, aggression and violence are linked to later mental health problems in-Service and post-Service.
- There is limited evidence of prevalence rates in families of military personnel, Reservists and Early Service Leavers. Few studies report prevalence rates for women.

5.1 Introduction and chapter overview

This chapter presents evidence on the prevalence of mental health conditions and behaviours among UK serving and ex-Service personnel and their families. We define *prevalence* as the proportion of a population that is affected by a condition or behaviour at a specific point in time (point prevalence). In total, we include 37 studies and synthesise their findings in a narrative structured by type of mental health condition and behaviour.

Section 5.2 provides a description of the evidence base. In section 5.3, we report findings on the prevalence of mental health conditions and behaviours among UK serving and ex-Service personnel (Research Question 1). In section 5.4, we explore factors associated with mental health conditions and behaviours, including the extent to which they may be linked to pre-Service factors (RQ1b).

5.2 Evidence base

A total of 37 studies met our inclusion criteria (see section 11.2 for a full list of references) and were included in this synthesis. Of these studies, 30 are primary studies and seven are reviews. Ten studies analyse data from the King's Centre for Military Health Research's (KCMHR) Cohort Study – a longitudinal cohort study consisting of three phases that has been running since 2003. The KCMHR cohort study is now in its third phase, with analysis and publication of the results still ongoing. As the KCMHR cohort study is longitudinal in nature, unlike many other studies, it provides trends in mental health conditions and behaviours in military populations over time and therefore is a key source of data on this topic. Other key sources of evidence include general population surveys, such as the Adult Psychiatric Morbidity Survey (APMS). APMS is a cross-sectional household survey assessing trends in mental disorders designed to provide insight into the prevalence of mental health conditions among the general population, as well as specific groups, such as military personnel. One of our included studies (Dighton et al., 2018) uses results from the 2007 APMS.²⁸ Other included primary studies use a range of research designs and methodologies, including large-scale, longitudinal cohort studies, the analysis and linking of datasets on health and justice services, and secondary analysis of other datasets.

A Table of Characteristics summarising the characteristics of studies included in this chapter is provided in the Technical Annex to this report (Phillips et al., 2020b), Chapter 6. It provides details on study author(s), date of publication, populations of interest, study design, sample size and estimates of prevalence of mental health conditions and behaviours.

²⁸ At the time of writing this report, the more recent 2014 APMS veteran dataset has not yet been examined due to restrictions imposed on access to the dataset.

5.2.1 Prevalence rates

We categorise mental health problems into conditions and behaviours, drawing on the ICD-11 classification as follows (full definitions are provided in the respective sections of this chapter):

Mental health conditions and behaviours:

- Post-Traumatic Stress Disorder (PTSD)
- Common Mental Disorders (CMD)
- Mood disorders
- Anxiety and fear related disorders
- Mild traumatic brain injury (mTBI)
- Disorders due to substance use or addictive behaviours
- Suicide and attempted suicide
- Self-harm
- Violent and aggressive behaviours and anger
- Other mental health conditions (including dissociative disorders, schizophrenia, personality disorder etc.)
- General discussion of mental health

All the studies included in this chapter report at least one of the conditions or behaviours of interest outlined above. The coverage across these outcomes varies, with more evidence for some conditions and behaviours than others. For example, 11 primary studies report on estimates of PTSD prevalence, using a version of the Post-Traumatic Stress Disorder Checklist.²⁹ We also found a large number of studies reporting prevalence estimates for Common Mental Disorders (CMD)³⁰ or specific conditions within this category, such as depression and anxiety. Five studies report estimates of CMD³¹, while four studies report estimates for depression³² and three studies report estimates for anxiety³³ separately.

We also found many studies that focus on mental health behaviours of interest. For example, 18 studies report on alcohol misuse³⁴, often using the Alcohol Use Disorder Identification Test (AUDIT).³⁵ Many of these studies also report on the associations between alcohol problems and other behaviours of interest, such as violent behaviour.

²⁹ Ashwick and Murphy, 2017; Bennett, 2017; Cawkill et al., 2015; Head et al., 2016; Kwan, 2016; Kwan et al., 2017; Murphy and Turgoose, 2018b; Murphy and Turgoose, 2018a; Stevelink et al., 2018; Whybrow et al., 2015; Woodhead, 2013.

³⁰ This category of mental health conditions includes disorders, such as depression and anxiety, and is used to group these conditions together, based on measures, such as the General Health Questionnaire.

³¹ Ashwick and Murphy, 2017; Goodwin et al., 2015; Stevelink et al., 2018; Whybrow et al., 2015; Woodhead, 2013

³² Murphy et al., 2016; Murphy et al., 2015; Royal British Legion, 2014; Short et al., 2018

³³ Murphy et al., 2016; Murphy et al., 2015; Short et al., 2018

³⁴ Aguirre et al., 2014b; Ashwick and Murphy, 2017; Cawkill et al., 2015; Goodwin et al., 2017; Head et al., 2016; Hines et al., 2014a; MacManus, 2013; Murphy and Turgoose, 2018b; Murphy et al., 2016; Murphy et al., 2015; Royal British Legion, 2014; Short et al., 2018; Stevelink et al., 2018; Stevelink et al., 2015; Thandi et al., 2015b; Whybrow et al., 2015; Williamson, 2018; Woodhead, 2013

³⁵ The Alcohol Use Disorder Identification Test (AUDIT) is a method of screening for excessive drinking, introduced by the World Health Organisation.

Nine studies report on violence, aggression or anger³⁶, including studies that measure violence through the number of recorded violent offences, or by self-report measures, such as the Dimensions of Anger Reactions-5 (DAR-5).³⁷

5.2.2 Populations

While there is a relatively broad literature examining prevalence rates for serving³⁸, ex-Service personnel³⁹ and Reservists⁴⁰, we found far fewer studies for some groups. In particular, there is limited evidence on prevalence rates for families of military personnel, with three studies discussing female partners of serving and ex-Service personnel.⁴¹

For a detailed table summarising the studies included in this chapter, see the Technical Annex (Phillips et al., 2020b) Chapter 6, section 6.1

5.3 The prevalence of mental health conditions and behaviours

The findings in this section are reported by mental health condition or behaviour, with prevalence rates presented for different populations of interest. For each condition or behaviour, we discuss the range of prevalence rates reported and highlight rates from recent studies that aim to provide representative samples (for example, by taking a random sample of serving or ex-Service personnel).

5.3.1 Post-Traumatic Stress Disorder

Post-Traumatic Stress Disorder (PTSD) is a disorder specifically associated with stress, which develops in response to exposure to a stressful or traumatic event(s) (WHO, 2018). The most recent estimates from the Adult Psychiatric Morbidity Survey 2014 (McManus et al., 2016) suggests that UK general population levels of PTSD are around 4.4%.

Serving personnel

Eleven studies included in the report examine the prevalence of PTSD among serving personnel.⁴² Five of these use data from the KCMHR cohort.⁴³ These studies find that prevalence of PTSD diagnosis ranges from 0.2% to 7.8%. More recent estimates put

³⁶ Ashwick and Murphy, 2017; Kwan, 2016; Kwan et al., 2017; MacManus, 2013; MacManus et al., 2015; Murphy and Turgoose, 2018b; Murphy et al., 2015; Thandi et al., 2015b; Turgoose and Murphy, 2018

³⁷ The Dimensions of Anger Reactions-5 (DAR-5) is a shortened 5 item version of an existing screening tool – the Dimensions of Anger Reactions (DAR) – used to measure anger.

³⁸ Aguirre et al., 2014a; 2014b; Cawkill et al., 2015; Goodwin et al., 2015; Hines et al., 2014b; Kwan et al., 2017; MOD, 2018a; Thandi et al., 2015a; Whybrow et al., 2015

³⁹ Ashwick and Murphy, 2017; Bergman et al., 2017; Dighton et al., 2018; Harden and Murphy, 2018; Murphy and Turgoose, 2018a; 2018b; 2018c; Murphy et al., 2015; Short et al., 2018; Stevelink et al., 2015

⁴⁰ Hines et al., 2014a; Kwan, 2016; MacManus, 2013; MacManus et al., 2014; MOD, 2018b; Stevelink et al., 2018; Thandi et al., 2015a; Williamson et al., 2018

⁴¹ Bennett, 2017; Murphy et al., 2016; Royal British Legion, 2014

⁴² Cawkill et al., 2015; Head et al., 2016; Hines et al., 2014b; MacManus et al., 2014; MOD, 2018a; 2016; Rona et al., 2016; Stevelink et al., 2018; Whybrow et al., 2015; Williamson et al., 2018; Woodhead, 2013

⁴³ Head et al., 2016; Hines et al., 2014b; Rona et al., 2016; Stevelink et al., 2018; Woodhead, 2013.

PTSD prevalence at 4.8% for serving personnel (Stevelink et al., 2018). Rona et al. (2016) observe higher rates of PTSD the longer the period post-deployment (between 2-2.9% at 6 months post-deployment, compared with 2.5-4.3% at 18 or more months post-deployment).

Data from the KCMHR cohort study has been used to explore the prevalence of PTSD over time. For example, Stevelink et al. (2018) compare prevalence rates of PTSD between all three phases of the current KCMHR cohorts (Phase 1 2004-2006; Phase 2 2007-2009; and Phase 3 2014-2016). They report that PTSD rates have remained relatively stable over time for serving personnel. Furthermore, the study finds that, overall, PTSD is less prevalent for serving personnel when compared with ex-Service personnel, as discussed below.

Ex-Service personnel

Eight studies examine the prevalence of probable PTSD diagnosis for ex-Service personnel.⁴⁴ Recent evidence indicates that levels of probable PTSD are higher among ex-Service personnel than serving (irrespective of whether ex-Service personnel have been deployed or not) (Stevelink et al., 2018; Williamson et al., 2018).

For example, Stevelink et al. (2018) find that the levels of probable PTSD were at 7.4% among ex-Service regulars compared with 4.8% among serving regulars.

As might be expected, estimates can be much higher for groups of help-seekers. For example, Ashwick and Murphy (2017) find a high prevalence of PTSD (84%) in their sample of help-seeking veterans recruited from the charity Combat Stress.

Reservists

MacManus et al. (2014) compare the mental health of UK Armed Forces personnel with that of the U.S. military, reporting that post-deployment mental illness is more prevalent amongst Reservists than regulars. The most recent estimates from Phase 3 of the KCMHR cohort study highlight that prevalence of PTSD amongst deployed Reservists continues to be higher than amongst non-deployed Reservists (Stevelink et al., 2018).

Other populations of interest

One study reports on the prevalence of PTSD among the female partners of military personnel, the latter of whom have been diagnosed with PTSD and are in receipt of help; the findings show 17% of the female partner sample meet the criteria for probable PTSD (Murphy et al., 2016).

We find no studies providing evidence on the PTSD prevalence amongst Early Service Leavers.

⁴⁴ Ashwick and Murphy, 2017; Head et al., 2016; MacManus, 2014; Murphy et al., 2015; Rona et al., 2016; Stevelink et al., 2015; Stevelink et al., 2018; Whybrow et al., 2015

5.3.2 Common Mental Disorders

Common mental disorder (CMD) is an umbrella term used to describe neurotic and non-psychotic affective disorders (depressive and anxiety disorders) and is a categorisation that four of our included studies use.⁴⁵ Since the conditions that make up CMD overlap with two of the ICD-11 categories, this section addresses the evidence on CMD, and then discusses the prevalence of mood disorders (depression) and anxiety and fear-related disorders separately.

The 2014 Adult Psychiatric Morbidity Survey finds that the total CMD prevalence in the general population of England⁴⁶ is 15.7% (MacManus et al., 2016). Woodhead's (2013) study, which utilises data from Phase 2 of the KCMHR cohort study (2007–2009), concludes that the general population are less likely to present symptoms of CMD than those in the military.

Serving personnel

Overall, the studies show that grouped CMD continues to be the most common mental health problem identified in UK serving personnel. The most recent evidence on the prevalence of CMD comes from the KCMHR cohort study. Based on analysis of the cohort over three phases, Stevelink et al. (2018) conclude that overall prevalence has remained stable, with 21.9% of participants reporting probable CMD. However, when compared to the previous two phases, results from Phase 3 indicate that CMDs have become more common among serving personnel, with the highest levels found among those not deployed.

In slightly less recent research, Goodwin et al. (2015) compare the prevalence of CMDs between the military population and the general population, restricting the sample to males aged 18 – 44 years only. The analysis finds that the prevalence of probable CMDs was 10.1% in the general population⁴⁷ compared with 18.7% in the Phase 2 KCMHR sample.

A synthesis study by MacManus et al. (2014) highlights the importance of the measure used to assess prevalence of CMDs. They find that CMD prevalence of UK military personnel deployed to Iraq or Afghanistan ranges between 16.7%-19.6% when using the 12-item General Health Questionnaire (GHQ12) and is around 27.2% when using the Patient Health Questionnaire (MacManus et al., 2014).

Ex-Service personnel

One study reports on prevalence of CMDs among ex-Service personnel. Stevelink et al. (2018) find that levels of CMD symptoms have decreased over time in ex-Service personnel, reporting a prevalence of 21.5%.

⁴⁵ Goodwin et al., 2015; Stevelink et al., 2018; Whybrow et al., 2015; Woodhead, 2013

⁴⁶ 16 to 64-year-olds

⁴⁷ Estimates from 2008 Health Survey for England male only sample

Other populations of interest

Analysis from the KCMHR cohort study (Stevelink et al. 2018) also finds a significant interaction between deployment status (whether deployed or not to Iraq/Afghanistan) and serving status (regular or reserve status) on CMDs - the prevalence of CMD among deployed Reservists was significantly higher than for deployed regulars (27.5% compared with 22%).

No evidence was found regarding families or Early Service Leavers.

5.3.3 Mood Disorders

Mood disorders refer to an umbrella category composed of bipolar and depressive disorders according to the ICD-11 classification (WHO, 2018). The primary types of mood disorders are depressive disorders, bipolar and manic disorders.

Ex-Service personnel

We found five studies that report the prevalence of mood disorders amongst ex-Service personnel.⁴⁸ One study uses a nationally representative sample to assess the prevalence rate of mental health conditions, while others focus on specific sub-populations of veterans.

A study by the Royal British Legion (2014), using the nationally representative Omnibus survey, finds that the prevalence rate of depression among the ex-Service community is 10% compared with 6% of UK adults (aged 16-64 in both cases). Ashwick and Murphy (2017), in their study of treatment-seeking veterans in the UK, compare rates of mental health problems with the results from the Royal British Legion study. They conclude that there are higher rates of mental health problems in the help-seekers from their study, including depression and anxiety (75% vs 4%). Murphy et al. (2015) measure prevalence of mental health problems in a sample of veterans accessing support and report a rate of 80% for depression. A report by Stevelink (2015) considers the prevalence of depression among male ex-Service personnel with a visual impairment and finds that 10% screened positive for a probable depression. A study of visual impairment in the general population reports that the prevalence of depression in visually impaired older adults is 13.5% (Thomas Pocklington Trust, 2016). However, these findings are not comparable because of differences in sample characteristics (e.g. age and gender).

Short et al. (2018) describe prevalence of mental health conditions among help-seeking veterans (charged with or suspected of having committed criminal offences) referred to Liaison and Diversion services. They find prevalence of depression among this group to be at 32% compared with 27% among non-veterans accessing these services.

⁴⁸ Ashwick and Murphy, 2017; Murphy et al., 2015; Royal British Legion, 2014; Short et al., 2018; Stevelink et al., 2015

The study also reports that 4% of ex-Service personnel charged with, or suspected of, having committed criminal offences report symptoms of bipolar disorder, which is similar to the rate among non-veterans in the same circumstances (4.2%). We found no further evidence describing the prevalence of bipolar disorder and its relationship to military status.

Other populations of interest

Two studies focus on the mental health of military partners (Bennett, 2017; Murphy et al., 2016). One of the studies finds that nearly half (48%) of their sample of military partners display trauma symptoms (Bennett, 2017). Murphy et al. (2016) find that 39% of female caregiving partners of UK veterans diagnosed with PTSD have symptoms of depression.

The review does not include any studies that report the prevalence of mood disorders among serving personnel, Reservists or Early Service Leavers.

5.3.4 Anxiety and fear related disorders

Anxiety also falls under the CMD categorisation, but this section reports on three studies that report prevalence for anxiety and fear related disorders specifically (Murphy et al., 2015; Murphy et al., 2016; Short et al., 2018). This includes experiences of excessive fear and anxiety and related behavioural disturbances, with symptoms that are severe enough to result in significant distress or impairment in personal, family, social, educational, occupational, or other important areas of function. The prevalence of anxiety in the general UK population was found to be 5.9% in 2014 (McManus et al. 2016).

Ex-Service personnel

Two studies report anxiety as a separate concept from depression or CMD for ex-Service personnel. However, both discuss prevalence of this condition among help-seekers, which does not make them comparable to the general population estimate.

Firstly, a study of ex-Service personnel diagnosed with Traumatic Brain Injury and seeking help from a mental health charity finds an anxiety prevalence of 69% (Murphy et al., 2015). The second study reports an anxiety prevalence rate of 37% for help-seeking veterans charged with or suspected of having committed criminal offences (Short et al., 2018). The authors conclude that alongside depression, anxiety is the most common health problem recorded in their ex-Service respective samples.

Other populations of interest

We found no studies providing evidence on the prevalence of anxiety amongst serving personnel.

One study reports a 37% prevalence of anxiety amongst female caregiving partners of UK veterans diagnosed with PTSD (Murphy et al., 2016).

5.3.5 Mild traumatic brain injury (mTBI)

Mild traumatic brain injury (mTBI), or concussion, is caused by an injury to the head, and is characterised by injury-induced unconsciousness. An mTBI can cause a variety of different symptoms, such as fatigue, memory loss, seizures, nausea and dizziness. Such symptoms will often resolve within 1-3 months, although may also persist for considerably longer (McInnes et al., 2017; Shetty, 2018).

Serving personnel

A review on mTBI (Turgoose and Murphy, 2018a) reports on mTBI prevalence of 9.5% among UK military personnel in combat roles deployed in Iraq and Afghanistan and prevalence rate of 3.2% measured across a 12-month period among personnel deployed to Afghanistan (4.2% for those who had been in frontline personnel).

Ex-Service personnel

A study of help-seeking ex-Service personnel finds that 63% reported exposure to a head injury that met criteria for TBI, a rate which the authors suggest is high because they ask about lifetime experience rather than during a specific deployment (Murphy et al., 2015).

Other populations of interest

The review did not find any evidence on the prevalence of mTBI in Reservists, Early Service Leavers or families.

5.3.6 Other mental health conditions

As well as the conditions mentioned above, five studies find evidence relating to a range of other mental health conditions, some of which include neurotic disorders, adjustment disorder, personality disorder, schizophrenia and dementia.⁴⁹

Serving personnel

The Ministry of Defence (2018a) report a 1.9% prevalence rate of neurotic disorders⁵⁰, among UK Armed Forces personnel.

Ex-Service personnel

Short (2018) reports rates for various mental health conditions among ex-Service personnel referred to Liaison and Diversion services (charged with or suspected of having committed criminal offences) and non-veterans who access these services. The author finds that ex-Service personnel are statistically significantly more likely to experience adjustment disorder (7.2% prevalence compared to 5.5% among non-

⁴⁹ Aguirre et al., 2014a; 2014b; MOD, 2018b; Royal British Legion, 2014; Williamson et al., 2018

⁵⁰ Neurotic disorders can include adjustment, other neurotic disorders and PTSD. Personality disorder refers to problems in functioning of aspects of the self and/or interpersonal dysfunction (ICD-11).

veterans) and dementia (1.3% prevalence compared to 0.2%). However, they are statistically significantly less likely to have a personality disorder (7.4% prevalence compared to 11% among non-veterans) or schizophrenia (5% prevalence compared to 12%).

5.3.7 Evidence relating to general mental health

There is also evidence relating to other measures of mental health and psychological wellbeing, such as loneliness, hopelessness and self-esteem.

Ex-Service personnel

A report by the Royal British Legion (2014) finds that 12% of veterans report 'psychological difficulties'. This includes 'lacking confidence or self-esteem' (4% of veterans) and 'lacking purpose or hope' (also 4% of veterans). The report also includes estimates of other feelings as a measure of wellbeing, and states that 23% of veterans report feeling lonely. The report states that the European Social Survey equivalent figure for the UK general population is 26%, though this figure might not be directly comparable to that from the Royal British Legion, due to the different sampling approaches taken by the studies.

Williamson et al. (2018) find that the prevalence of any mental health problems among ex-Service personnel who used to serve as deployed regulars is 10% compared with 14% for non-deployed regular ex-Service personnel.

Other populations of interest

Two studies report prevalence of other mental health conditions among serving personnel.

Aguirre et al. (2014a and 2014b) collect enhanced mental health assessment questionnaires from personnel undergoing routine and discharge medicals at defence medical centres and find that 8% are categorised as "some concern and patient offered advice and/or reassurance".

Williamson et al. (2018) find that 10% of deployed regular serving personnel experience some mental health problem compared with 17% of non-deployed regular serving personnel. This prevalence is similar to that of Reservists (11%, and 17% for deployed and non-deployed respectively) (Williamson et al., 2018).

5.3.8 Disorders due to substance use or addictive behaviours

ICD-11 (WHO, 2018) defines disorders due to substance use and addictive behaviours as mental and behavioural disorders that develop as a result of the use of psychoactive substances, or repetitive rewarding and reinforcing behaviours. Examples of addictive behaviours include gambling disorder and gaming disorder (WHO, 2019). Alcohol use disorders are also included within this category. The 2014 Adult Psychiatric Morbidity

Survey indicates that 16.6% of the general population drink at hazardous levels⁵¹, 1.9% at harmful levels⁵², and that 1.2% are probably dependent drinkers⁵³ (Public Health England, 2018).

Two studies look at the prevalence of substance misuse or addictive behaviours, which do not involve alcohol (Dighton et al., 2018; Short, 2018). Dighton et al. (2018) looks at rates of gambling and Short (2018) at substance use (substances other than alcohol). The MOD (2018a) report on rates of psychoactive substance use due to alcohol.

18 studies focus on alcohol use, reflecting interest in levels of alcohol consumption within the military population.⁵⁴ Whilst the most common measure used is the Alcohol Use Disorder Identification Test (AUDIT), studies use different thresholds to determine prevalence, meaning that they are not directly comparable.

There is evidence that alcohol misuse is more prevalent in serving personnel than the general population. Stevelink et al.'s (2018) study, which presents the findings of Phase 3 of the KCMHR cohort, concludes that alongside CMDs, alcohol misuse⁵⁵ remains the most common mental health problem in UK serving and ex-Service personnel. It also reveals a declining prevalence of alcohol misuse when compared with the previous two cohort phases, irrespective of serving or ex-Service status. It also shows that in contrast to Phase 2, alcohol misuse was no longer associated with deployment at Phase 3. The authors attribute it to three factors: a comparable decline in alcohol consumption in the UK general population; the increased average age of cohort given that alcohol misuse is less frequent with age and the fact that alcohol misuse at Phase 2 was mildly associated with non-response during Phase 3.

Serving personnel

The prevalence of alcohol misuse among serving personnel measured by the most recent KCMHR cohort study was 10% (Stevelink et al., 2018). A 2014 pilot study of a (then) new assessment tool for diagnosing mental health conditions of service personnel attending routine and discharge medicals finds that 65% scored for 'higher risk' drinking⁵⁶ (Aguirre et al., 2014b). The latter study, however, uses a much lower cut off point for the AUDIT score (4+ as opposed to 16+ in KCMHR cohort study).

A report by MOD (2018a) demonstrates that among those admitted to MOD Specialist Mental Health services, the rates of psychoactive substance abuse due to alcohol was 0.1%. However, it does not capture rates for those treated within the primary care setting by their GP or medical officer.

⁵¹ AUDIT score of 8-15

⁵² AUDIT score of 16+

⁵³ AUDIT score of 20 or more

⁵⁴ Aguirre et al., 2014b; Ashwick and Murphy, 2017; Cawkill et al., 2015; Goodwin et al., 2017; Head et al., 2016; Hines et al., 2014a; MacManus, 2013; Murphy and Turgoose, 2018b; Murphy et al., 2016; Murphy et al., 2015; Royal British Legion, 2014; Short et al., 2018; Stevelink et al., 2015; Stevelink et al., 2018; Thandi et al., 2015b; Whybrow et al., 2015; Williamson, 2018; Woodhead, 2013

⁵⁵ AUDIT score 16+

⁵⁶ AUDIT score 4+

Ex-Service personnel

Similarly to rates for serving personnel, the prevalence of alcohol misuse among ex-Service personnel as measured by the KCMHR study was 10% (Stevelink et al., 2018). Williamson et al. (2018) conduct a meta-analysis to estimate prevalence of mental health problems in members of the UK Armed Forces who served between 1991-2014. They report that the prevalence of alcohol misuse among regular ex-Service personnel ranges from 10% to 13%, with the latter estimate reflecting a higher prevalence amongst those who had been deployed.

In a large household study of a nationally representative sample of ex-Service personnel, the Royal British Legion (2014) reports that 1% self-report an alcohol-related illness.⁵⁷ Comparing their results with the 2007 Adult Psychiatric Morbidity Survey, they conclude that the ex-Service community is less likely to have an alcohol problem. For example, whilst prevalence of medium-level alcohol problems (defined by an AUDIT score of 8-15) is 8% for UK veterans, this prevalence rate is higher for the general population (at 20%) and higher still when looking at males in the general population only (27%). As the authors suggest, while veterans aged 16-54 are found to be only slightly less likely to have a problem than all English adults, those aged 55 and over are considerably less likely to have a problem.

Studies using samples of veterans seeking treatment report much higher prevalence rates (Ashwick and Murphy, 2017; Murphy and Turgoose, 2018b). This may be due to their use of alcohol having reached such levels that they have recognised and felt the need to seek help, or it has been noticed by others and they have been told to seek help (Sharp, 2015; Lovatt, 2017). Ashwick and Murphy (2017) find the prevalence of help-seeking veterans with alcohol misuse to be at 26%. Murphy and Turgoose (2018b) find that more than half of the sample report either hazardous (42%) or harmful levels (22%) of alcohol misuse.⁵⁸ Short (2018) compares the health needs of vulnerable offenders (military personnel and civilians) screened by NHS Liaison and Diversion services. It states that 38% of veterans report alcohol misuse, and 18% substance use (defined as substances other than alcohol). This is compared to 29% of non-veterans reporting alcohol misuse and 28% reporting substance use.

Dighton et al. (2018) compare 'problem gambling' among veterans and non-veterans who took part in the 2007 Adult Psychiatric Morbidity Survey. Gambling problems were assessed using the DSM-IV problem gambling diagnostic criteria, with individuals who met criteria for 3-4 items out of 10 classed as a 'problem gambler.' They find the problem gambling prevalence for veterans is 1.4% compared with 0.2% for non-veterans.

Reservists

Prevalence of harmful alcohol use is lower amongst Reservists than regular serving personnel. Within Reservists as a group, Stevelink et al. (2018) report alcohol misuse prevalence at 5.5% for non-deployed Reservists, and 9.9% for deployed Reservists. By

⁵⁷ High level problems defined as an AUDIT score higher than 16

⁵⁸ Hazardous levels correspond to an AUDIT score higher than 8, whilst harmful levels correspond to an AUDIT score higher than 16.

contrast, Williamson et al. (2018) find no significant differences between previously deployed and non-deployed Reservists (8% and 9% respectively).

Other populations of interest

A study of female caregiving partners of UK veterans diagnosed with PTSD finds that 45% score positively for alcohol difficulties⁵⁹ (Murphy et al., 2016).

This review finds no evidence on how prevalence rates of alcohol misuse may differ among other sub-groups, such as Early Service Leavers.

5.3.9 Suicide

A total of four studies examine suicidal behaviours and cognition, including suicide, attempted suicide and suicidal ideation.⁶⁰

In 2018, there were 6,507 suicides registered in the UK's general population, equivalent to an age-standardised rate of 11.2 deaths per 100,000 population. This latest rate is significantly higher than that reported in 2017 and represents the first increase since 2013. Three-quarters of registered deaths in 2018 were among men (4,903 deaths), which has been the case since the mid-1990s (ONS, 2019). In comparison, there is evidence of lower risk for serving populations, with research indicating that members of the general population are statistically significantly more likely to take their own life than serving personnel (MOD, 2016). This conclusion is in line with previous research on the topic (Mental Health Foundation, 2013). For ex-Service personnel, the evidence is less clear – with some indications of higher rates of suicide in military veterans than in the general population, but none that are statistically significant (Bergman et al., 2017; Dighton et al., 2018).

Serving personnel

Among serving UK Armed Forces, the MOD (2016) reports an overall suicide and open verdict death rate of 0.009% per year between 1996 and 2015, with a decline in rates over this period, as the yearly rate for 2014-15 stands at 0.004%.⁶¹ In comparison, the male UK general population suicide rate for 2014-15 was 0.017% (MOD, 2016) which equates to a prevalence among serving personnel four times lower than that of the male UK general population.

Ex-Service personnel

A study by Bergman et al. (2017) examining suicide rates among Scottish ex-Service personnel over a thirty-year period finds an overall suicide rate of 0.48% compared with 0.53% in Scottish non-veterans, though this difference is not statistically significant. It is worth reiterating that the nature of Bergman et al.'s (2017) sample is made up

⁵⁹ AUDIT-C was used as a screening tool for problems with alcohol, a score of three or above for females or four and above for males is used to define the presence of alcohol problems

⁶⁰ Bergman et al., 2017; Dighton et al., 2018; Harden and Murphy, 2018; MOD, 2016

⁶¹ The 2014-15 figure includes data from males aged 16-59 only, as the number of suicides among female Service personnel was too low to be able to include in the analysis.

exclusively of Scottish ex-Service personnel and the majority of the sample are male (90%), and it is known those in the male Scottish general population are at a greater risk of suicide compared to their counterparts in England (Baker, 2016; Samaritans, 2018).

In terms of the UK ex-Service population as a whole, a further study indicates that ex-Service personnel have a higher risk of suicide than the general UK population, though this finding is based on a very small sample and is also not found to be statistically significant (Dighton et al., 2018).

Early Service Leavers (ESLs)

Three studies examine the association between suicide and being an ESL.⁶² Bergman et al.'s (2017) study of Scottish veterans finds that while ESLs are more likely to die by suicide (an increased prevalence of 1.13 times that of non-ESL), this difference is not statistically significant and is only apparent among older age groups. Dighton et al. (2018) similarly report an increased prevalence of attempted suicide among ESLs (7.21%) compared to non-ESLs (5.88%) but again, this difference is not statistically significant. Supporting these findings, however, Harden and Murphy's (2018) study of help-seeking veterans finds ESLs in their sample to be statistically significantly more likely than non-ESLs to experience suicidal ideation.⁶³

Other populations of interest

We find no studies examining the prevalence of suicide among serving or veteran families, or Reservists.

5.3.10 Self-harm

There is less evidence on the prevalence of self-harm compared with suicide, with only two included studies reporting on it (Dighton et al., 2018; MacManus, 2014). Baker (2018) finds that 5.4% of people in England report having self-harmed in the past year, while 6.4% report having ever self-harmed.

Serving and ex-Service personnel

In a study comparing serving personnel with the general population, Dighton et al. (2018) find no statistically significant difference in levels of reported self-harm.

A synthesis study reporting on the mental health of the UK Armed Forces deployed to Iraq or Afghanistan, finds differences in levels of self-harming by serving status, with

⁶² Definitions of ESLs differ by study, with Bergman et al. (2017) defining them as ex-Service personnel with equal or less than 2.5 years' Service, while Harden and Murphy (2018) and Dighton et al. (2018) define them as ex-Service personnel with less than 4 years' service. Furthermore, Harden and Murphy's (2018) and Dighton et al.'s (2018) sample sizes are smaller (144 veterans seeking treatment and 257 veterans respectively, while Bergman et al.'s (2017) sample consists of 56,205 veterans.

⁶³ (Odds Ratio, 8.46 [95% Confidence Intervals, 2.21, 32.35]). An Odds Ratio (OR) is a statistic that quantifies the strength of the association between two events – in this case, the association between suicidal ideation and being an ESL help-seeking veteran. The OR presented here can be interpreted as showing that ESL help-seeking veterans are around 8.5 % more likely than non-ESL help-seeking veterans to experience suicidal ideation. Confidence Intervals indicate the range of values around the Odds Ratio that are understood to contain, with a certain probability, the true value of that statistic.

self-harming being more prevalent among ex-Service personnel (10.5%) than serving personnel (4.2%) (MacManus et al. (2014).

Other populations of interest

No evidence is found regarding self-harming behaviours among Reservists or military families.

5.3.11 Violent and aggressive behaviours and anger

A total of six studies look at violence and aggressive behaviours.⁶⁴ However, as the studies use a variety of different measures and methods, the findings are not directly comparable. Four studies look at the prevalence of anger among ex-Service personnel.⁶⁵

MacManus (2013) is the only author to examine behaviours based on violent conviction rates. They use data from 12,359 serving and ex-Service personnel and find a lifetime prevalence⁶⁶ of 10%, compared to 8.7% for the same among the general UK population.

Serving personnel

A number of studies examine prevalence of violent behaviours through self-reported data, by asking respondents about certain behaviours, such as whether or not they had been in a physical fight within the past month. Using this method, Kwan et al. (2017) find that immediately following deployment, the prevalence of family-directed violence is at 3.6%. The estimate of violence and physical assault towards strangers is higher at 7.6%, while the prevalence of all types of physical assault is estimated at 10% (Kwan et al. 2017). MacManus et al. (2015) conduct a meta-analysis of post-deployment violence among those who had deployed to Iraq and Afghanistan and report prevalence of 10% for physical assault and 29% for all types of physical aggression.

Ex-Service personnel

Three studies look at the *prevalence of anger* among ex-Service personnel who have been admitted to or are seeking help from charity, Combat Stress (Ashwick and Murphy, 2017; Murphy et al., 2015; Turgoose and Murphy, 2018b). Using the DAR scale⁶⁷ they estimate the prevalence of anger problems among the help-seeking population to be between 53% - 74% (Ashwick and Murphy, 2017; Murphy et al., 2015; Turgoose and Murphy, 2018b).

⁶⁴ Kwan, 2016; Kwan et al., 2017; MacManus, 2013; MacManus et al., 2015; Thandi et al., 2015a; Turgoose and Murphy, 2018b

⁶⁵ Ashwick and Murphy, 2017; Murphy et al., 2015; Turgoose and Murphy, 2018b

⁶⁶ Lifetime prevalence describes the proportion of a population that is affected by a condition or behaviour over the course of their lives.

⁶⁷ Forbes D, Alkemade N, Mitchell D, et al. Utility of the Dimensions of Anger Reactions-5 (DAR-5) scale as a brief anger measure. *Depress Anxiety* 2014; 31:166–73.

Turgoose and Murphy (2018b) study finds *self-reported violence* to be present among 28% of their sample. However, as the study collected data from a sample of treatment-seeking ex-Service personnel, so prevalence among the wider veteran population may be lower than the estimate stated in this particular sample.

Other populations of interest

Self-reported physically violent behaviour among Reservists ranges from 3% (Thandi et al., 2015a) to 3.5% (Kwan, 2016).

No evidence is found regarding prevalence rates of violent and aggressive behaviours for families and ESLs.

5.4 Factors associated with mental health conditions and behaviours

The next section presents factors associated with developing mental health conditions and behaviours. It considers pre-Service factors, in-Service factors as well as co-morbidity and socio-demographic factors.

The evidence base predominantly explores life during and after military Service, with comparatively little evidence investigating associations between pre-Service factors and mental health problems in populations of interest. So, for example, while there is a large evidence base exploring the association between exposure to combat zones, traumatic events and the development of mental health problems, there is comparatively little evidence that explores whether pre-Service events or experiences may be linked to later mental health problems.

5.4.1 Pre-Service factors

There is evidence that experiences of pre-Service adversity are associated with various later mental health problems.

A study by the Royal British Legion (2014) finds that early adverse experiences, such as getting in trouble with the police, being physically abused by a parent or caregiver or having a parent with drug or alcohol problems, are associated with experiencing difficulties post-Service (where difficulties include mental health problems, such as depression or loneliness, but also personal circumstances, such as a problematic financial or housing situation).

MacManus et al. (2015) undertake a systematic review on the prevalence of aggressive and violent behaviours, as well as of violent offences and convictions, among UK serving military personnel following deployment to Iraq and/or Afghanistan and find evidence that there is a strong association between pre-service violent behaviour and self-reported post-deployment violence. A further study by MacManus (2013) finds that pre-Service violent offending is found to be the strongest risk factor for post-deployment violent offending. Elsewhere, violent behaviour among deployed Reservists (Kwan, 2016) and deployed personnel (Kwan et al., 2017) is found to be

linked to pre-Service antisocial behaviour. Childhood adversity⁶⁸ is also found to be linked to problems with anger and depression in veterans (Turgoose and Murphy, 2018b).

MacManus et al. (2014) find evidence for a statistically significant link between childhood adversity and suicide and self-harm. Similarly, Harden and Murphy (2018) find that experiencing pre-Service adversity is significantly associated with suicidal ideation in veterans. There is also historic evidence that between 1996 and 2015, males in the Army who are under 20 were at an increased risk of suicide when compared with males under 20 within the UK general population, likely because the Army typically recruits younger males compared to the other Services, and they often join straight from school and come from socio-economically deprived areas (MOD, 2016).

Goodwin et al. (2017) find an association between childhood anti-social behaviour and heavy drinking for serving military personnel, with heavy drinkers also more likely to have a mental health problem. Finally, Dighton et al. (2018) find that problem gambling is significantly more prevalent in veterans (1.4%) than the general population (0.2%) and conclude that the impact of gambling problems on the family is associated more closely with male veterans than male non-veterans, particularly those who had experienced stressful life events (from age 16 onwards).

5.4.2 In-Service factors

Six studies find a link between deployment and PTSD⁶⁹, four of them reporting on deployment to Iraq or Afghanistan specifically.⁷⁰ One study finds that experiencing difficulties of adjustment following deployment is a key risk factor for PTSD diagnosis in female serving personnel. In fact, 11.7% of females experiencing difficulties with adjustment had PTSD, while only 2% of those who did not encounter adjustment related difficulties were found to have PTSD (Woodhead, 2013). Deployment is also associated with increased risks of CMD and alcohol misuse - after deployment but not during deployment (Stevelink et al., 2018; Ashwick and Murphy, 2017), and depression - during deployment compared to post-deployment (Bennett, 2017).

Having experienced combat is also frequently linked to mental health problems, as reserves who experienced combat have the highest risk of developing PTSD and CMD post-deployment (Stevelink et al., 2018). It was also associated with higher risks of mTBI (Murphy and Turgoose, 2018a; Turgoose and Murphy 2018a) and violent or aggressive behaviours post-deployment for ex-Service personnel.⁷¹ Studies also point

⁶⁸ The authors define childhood adversity as whether participants had experienced adverse childhood events such as domestic violence.

⁶⁹ Hines et al., 2014b; MOD, 2018b; Murphy and Turgoose, 2018a; Stevelink et al., 2018; Williamson et al., 2018; Woodhead, 2013

⁷⁰ Hines et al., 2014b; MOD, 2018b; Murphy and Turgoose, 2018a; Stevelink et al., 2018

⁷¹ Kwan, 2016; Kwan et al., 2017; MacManus, 2013; MacManus et al., 2015; MacManus et al., 2014; Thandi et al., 2015a

to a relationship between violent or aggressive behaviours and having had a combat role⁷² or being deployed.⁷³

Other in-Service factors associated with mental health problems for serving and ex-Service personnel, include shorter service time, being marine-based (rather than land-based), and having low levels of post-deployment support, poor unit cohesion, poor leadership and low morale (Goodwin et al., 2015; MacManus et al., 2014; Stevelink et al., 2018; Whybrow et al., 2015; Woodhead, 2013). Being of lower rank is also associated with violent and aggressive behaviours (MacManus, 2013; Thandi et al., 2015a) and with higher levels of PTSD (Stevelink et al., 2018).

5.4.3 Co-morbidity

Studies also discuss the presence of other mental disorders as a risk factor among both serving and ex-Service personnel (which highlights the complexity of mental health and co-morbidity). For example, the evidence shows that having PTSD is associated with alcohol misuse.⁷⁴ Murphy et al. (2015) explore the association between mental health conditions, such as depression and traumatic brain injury (TBI) and find that in a help-seeking veteran population, those with a TBI are significantly more likely to be depressed. However, it should be noted that findings from a help-seeking sample should not be generalised to the wider veteran population. Disorders due to substance use or addictive behaviours are linked with having anger problems and having other CMDs or having other additional substance misuse problems (Murphy and Turgoose, 2018b; Thandi et al., 2015a). Violent and aggressive behaviours were also associated with alcohol misuse⁷⁵, PTSD⁷⁶ and CMD⁷⁷.

5.4.4 Socio-demographic factors

Studies also discuss an association between a range of demographic factors and the risk of developing mental health condition. For example, serving and ex-Service personnel under the age of 25 are reported as being at greater risk of both PTSD and CMDs, while female serving personnel are found to be at greater risk of CMD.⁷⁸ The same factors are also discussed in relation to alcohol-use disorders, for which the risk is increased for male serving personnel and for serving and ex-Service personnel who are single.⁷⁹

Demographic characteristics appear to be a key factor affecting the prevalence of suicide among military personnel. The most commonly cited factor associated with prevalence of suicide or suicidal ideation is age (Bergman et al., 2017; Harden and Murphy, 2018; MOD, 2016). Suicide risk increases with age up to middle-age, with

⁷² Kwan, 2016; Kwan et al., 2017; MacManus, 2013; MacManus et al., 2015; MacManus et al., 2014; Thandi et al., 2015b

⁷³ Kwan, 2016; Kwan et al., 2017; MacManus, 2013; Thandi et al., 2015

⁷⁴ Cawkill et al., 2015; Head et al., 2016; Murphy and Turgoose, 2018b; Thandi et al., 2015b; Turgoose and Murphy, 2018

⁷⁵ Kwan, 2016; Kwan et al., 2017; MacManus et al., 2014; MacManus, 2013; MacManus et al., 2015; Turgoose and Murphy, 2018b

⁷⁶ Kwan, 2016; Kwan et al., 2017; MacManus, 2013; Turgoose and Murphy, 2018b

⁷⁷ Kwan, 2016; Kwan et al., 2017; Turgoose and Murphy, 2018b

⁷⁸ Goodwin et al., 2015; MOD, 2018b; Stevelink et al., 2018; Whybrow et al., 2015; Murphy et al., 2016; Woodhead, 2013

⁷⁹ Increased risk for men: Thandi et al., 2015b; Whybrow et al., 2015;

Increased for those who are single: Murphy and Turgoose, 2018b; Thandi et al., 2015b; Woodhead, 2013

those aged 34-55 being the most likely to die by suicide, although after this, overall risk then starts to decline (Bergman et al., 2017; Harden and Murphy, 2018).

5.4.5 Factors associated with mental health of families and partners of personnel

Two studies explore factors associated with mental health conditions specifically for the partners of military personnel. Murphy et al. (2016) highlight veterans' partners' socioeconomic status as a risk factor, with unemployment likely to increase the severity of depression (and the symptoms of other conditions, such as anxiety and PTSD). Bennett (2017) examines the mental health of partners of personnel before, during and after deployment and finds that previous traumatic experiences and having a partner of a lower rank, are associated with an increased risk of depression. Additionally, rates and severity of depression, stress and trauma symptoms among partners are found to reduce post-deployment (Bennett, 2017). Protective factors for partners include living together full-time and the partner having previously served in the military (Murphy et al., 2016; Bennett, 2017).

6 Findings: Experience

Chapter highlights

Overview:

This chapter reports on the evidence provided by 36 primary studies and 2 evidence reviews on the experiences of mental health conditions and behaviours among UK serving and ex-Service personnel, and to a lesser extent, sub-groups including females, Reservists, and serving/ex-Serving personnel's families.

Key findings:

Experiences of mental health problems

- Experiences during service, such as being deployed and exposed to combat are strong predictors of mental health problems in-Service and post-Service. Other experiences related to work culture (such as workload, unit cohesion, and degree of peer support) are also important determinants of mental health in service personnel. Experiences of physical and psychological bullying, intimidation and lack of respect also contribute to anxiety and anger.
- Excessive alcohol consumption may be normalised during service and contribute to alcohol misuse in serving personnel and veterans.
- There is evidence of a delayed recognition of mental health difficulties among serving and ex-Service personnel. Coping mechanisms used include detachment and use of alcohol or drugs.
- Receiving a diagnosis is important for providing personnel with an explanation of their symptoms which may have caused confusion prior to seeking help.

Help-seeking and accessing support

- Help-seeking is often delayed after leaving the military and among serving personnel is lower for mental health problems than medical ones.
- Mental health stigma is a recurring theme across included evidence for both serving and ex-Service personnel and is closely bound up with perceptions of military norms and the potential negative impact on military careers.
- Studies describe a lack of awareness among Service-leavers about availability of mental health support and how to access it when transitioning to civilian life.
- The evidence on veterans' satisfaction with support they have received is mixed. Some of the issues experienced include difficulty navigating between different services or experiencing long waiting times. The more positive experiences of treatment come from feeling understood, by having contact with someone who is aware of their military background, and treatment which offers opportunities to foster relationships with fellow military personnel.
- Families of serving and ex-Service personnel face similar challenges to those experienced by military populations, such as stigma or concerns around confidentiality when seeking help.
- Most studies focus on male serving or Ex-Service personnel with a limited evidence base for female military personnel and families.

6.1 Introduction and chapter overview

This chapter presents evidence on the experiences of mental health conditions and behaviours among UK serving and ex-Service personnel and their families. In total, we include 38 studies and synthesise their findings in a narrative, structured around our research questions and key themes of interest.

Section 6.2 provides a description of the evidence base. In section 6.3 we report findings on the experiences of mental health problems among UK serving and ex-Service personnel and their families (Research Question 2 and 2a). In section 6.4 we consider the evidence of help-seeking, including evidence on stigma and disclosure, help-seeking among different military populations and types of support accessed (RQ2b). The section also discusses barriers and enablers to help-seeking (RQ2c).

6.2 Evidence base

A total of 38 studies met our inclusion criteria and were included in this synthesis. Of these studies, 36 are primary studies and two are reviews (a full list of these studies is provided in the Bibliography, Chapter 11). The primary studies employ a range of research designs and methodologies, including semi-structured interviews, participant observations, secondary data analysis, surveys and ethnographic observations.

A Table of Characteristics summarising the characteristics of all studies included in the Experience domain is provided in the Technical Annex to this report (Phillips et al., 2020b), Chapter 6. It provides details on study author(s), date of publication, populations of interest, study design and sample size.

6.2.1 Populations

Thirteen studies look solely at serving personnel and 18 solely at ex-Service personnel. One study discusses findings for both serving and ex-Service personnel. The majority of these studies refer to male-only populations. Six studies report experiences of the families of military personnel; three focus on female partners, and only one study reports on children of serving or ex-Service personnel.

6.3 Experiences of mental health problems

In this section we first report findings on the effects of deployment-related experiences on mental health and then discuss what it is like to live with mental health problems for our different populations of interest.

6.3.1 The effects of deployment-related experiences on mental health

Deployment

Four studies in this review examine the link between deployment and mental health disorders.⁸⁰ According to the evidence review conducted by Ramchand et al. (2015), combat exposure is the strongest predictor of mental health problems among military personnel deployed to Iraq and Afghanistan. Moreover, being injured during combat increases risk of PTSD and depression.

Defining traumatic experiences and assessing their impact is complex. Hatton (2016) emphasises the link between experiencing traumatic events and developing PTSD. The research shows that veterans might exhibit symptoms associated with PTSD without experiencing a specific traumatic event, but instead as a result of exposure to stressors and strains during Service. Findings from an ethnographic observational study of a British medical military team deployed in Afghanistan indicate that war can have a psychological impact on those involved regardless of whether individuals are working in a combat role (De Rond and Lok, 2016).

Mental health difficulties can have a delayed manifestation, with Service personnel exhibiting psychological distress after returning from deployment (De Rond and Lok 2016). Several medical Service personnel interviewed by De Rond and Lok (2016) experienced some psychological distress upon arrival back home. Thus, the author indicates that emotional numbness during deployment is a temporary necessary coping mechanism. The concept of post-traumatic growth is explored by Palmer et al. (2016) in their study of the lived experience of UK veterans diagnosed with PTSD. The study shows that the process of dealing with and coming to terms with a traumatic experience is complex, as there is evidence of those who have been exposed to military trauma experiencing positive changes. This includes a renewed appreciation of the external world and gaining a new sense of self and purpose.

Mental health problems are also linked to sleep problems. Hunt et al. (2016) examine the prevalence of post-deployment sleep difficulties in UK Armed Forces by measuring sleep difficulties immediately after deployment and six months later. They report a strong association between sleep problems and mental health problems, with most participants suffering from mental health disorders experiencing poor sleep quality and sleep-related functional impairment. The authors conclude that, as self-reported sleep complaints represent robust indicators of mental health problems, and personnel are more likely to acknowledge a sleep problem than an emotional problem, screening for sleep-related impairment might be a helpful proxy for identifying emotional strain.

Work environment and leadership characteristics

There is a well-documented relationship between the nature of the military work and the mental health and wellbeing of Service personnel. An analysis conducted by Jones and Coetzee (2018) indicates that work strain is significantly associated with

⁸⁰ De Rond and Lok, 2016; Hatton, 2016; Keeling, 2017; Ramchand et al., 2015

experiencing an emotional, mental health or alcohol problem, irrespective of whether help is sought or not. Excessive workload is linked with self-classifying as having a mental health problem. Ramchand et al. (2015) report that being overworked and undermined professionally during military service affects the mental health of both male and female Service personnel.

Lack of respect and support from peers and leaders can also adversely affect the wellbeing of serving personnel during and after deployment. Ramchand et al. (2015) find that PTSD is predicted by poor unit social support and unsupportive leadership. Moreover, qualitative research conducted with serving personnel finds that bullying is a common experience of military life (Sharp, 2015). Participants recount episodes of physical and psychological bullying which precipitated symptoms of extreme anxiety and anger. Woodhead (2013) identifies the impact of role-related and interpersonal stressors on female Service personnel. These stressors include lack of peer support from colleagues who are predominantly male, and more directly, feeling undermined or intimidated by peers.

Alcohol misuse

Alcohol misuse is reported to be encouraged and normalised during military service.⁸¹ Findings from a qualitative study with UK veterans indicate that experiences during military service contribute to veterans' tendency to normalise excessive alcohol consumption when they return to civilian life. Participants describe how alcohol is used as a bonding tool, as it facilitates building camaraderie. Excessive alcohol consumption during service is sometimes treated as a badge of honour, as the ability to drink heavily and function well the next day constructs the identity of 'working hard, playing hard' (Kiernan et al., 2018, p. 727). A recent report on veterans and alcohol misuse (Kiernan et al., 2017) highlights that longer deployment periods contribute to the development of alcohol misuse, as during these periods of time spent away, heavy drinking can be used as a strategy to cope with pressure, as well as a way to socialise with colleagues. The evidence indicates a lack of recognition of an alcohol problem among serving and ex-Service personnel. Survey data collected by Hines et al. (2014a) shows that only a minority of serving personnel with substance abuse problems, specifically alcohol misuse, report having an alcohol problem. This indicates that people at increasing risk of alcohol dependency may not recognise that they have an issue until it reaches a debilitating level (Hines et al. 2014a). Sharp's (2015) study also finds that among participants screened positive for an alcohol use disorder, only 35% recognised that they were currently experiencing a problem.

6.3.2 Living with mental health problems

Two key stages are identified across the studies in relation to living with a mental health condition: first is the initial misunderstanding of symptoms prior to diagnosis, which is associated with self-blame, denial of symptoms, and feeling unable to control changes in behaviour; the second key stage, subsequent to diagnosis and acceptance of condition, involves a process of building understanding and motivation (Hallett 2012).

⁸¹ Kiernan et al., 2018; Kiernan et al., 2017; Sharp, 2015.

Delayed recognition and coping with mental health difficulties

There is evidence of a delayed recognition of mental health difficulties among serving and ex-Service personnel.⁸² For some ex-Service personnel, limited awareness of the symptoms of different mental health conditions may mean that they do not recognise the need for treatment (Farrand et al., 2018; Kantor et al., 2017). This failure to recognise a mental health condition can also be due to misattributing symptoms to physical-related health difficulties (Mellotte et al., 2017). If symptoms are mild and effectively self-managed, this can contribute to delays in veterans identifying a need for treatment (Rafferty et al., 2017). Indeed, the decision to seek help is sometimes delayed until the point when symptoms become more severe, or a crisis event occurs. Examples of such crisis events include suicide ideation and suicidal actions, being at risk of going to prison, or at risk of losing their family or job (Mellotte et al., 2017; Rafferty et al., 2017).

The evidence suggests that soldiers may prefer to self-manage their mental health for fear of being labelled as 'weak', using coping strategies, such as alcohol consumption or avoidance, to normalise their symptoms as usual everyday life stresses (Keeling et al., 2017; Sharp, 2015). The use of maladaptive strategies, such as alcohol or drugs, serve as mechanisms to help cope with distressing symptoms (Sharp, 2015; Lovatt, 2017). For example, participants interviewed by Sharp (2015) describe experiencing a range of symptoms, including anxiety, nightmares, panic attacks, sleep problems and hypervigilance. They report a feeling a loss of control and anger over difficulty understanding their symptoms which in turn can lead to drinking until out of control, reinforcing a vicious circle. Veterans interviewed by Lovatt (2017) use alcohol and drugs as coping strategies to suppress traumatic reminiscences and PTSD symptoms, such as nightmares. For veterans in prison interviewed by Wainwright et al. (2016), impulsive behaviour and alcohol misuse act as coping mechanisms for dealing with the new challenges.

Gaining understanding of mental health conditions

Several studies discuss the importance of receiving a diagnosis in enabling personnel to re-claim a sense of control over their condition and start to address their mental health difficulties (Hatton, 2016). Hatton (2016) describes how prior to diagnosis, male veterans with PTSD felt alone in their experience, no longer in control of their emotions and behaviour and blamed themselves, assuming there was something intrinsically wrong with them. A diagnosis is therefore a crucial step in their journey to seek help as it helps the individual to understand their symptoms and separate the condition from their own identity.⁸³

Hallet (2012) explores the journey to understand one's health condition among male veterans diagnosed with combat-related PTSD and highlights the experience of two broad themes - 'being misunderstood' (feeling isolated from civilian society, feeling that health professionals do not understand their military background and abandoned

⁸² Mellotte et al., 2017; Murphy et al., 2014; Rafferty et al., 2017; Sharp, 2015.

⁸³ Mellotte et al., 2017; Murphy et al., 2014; Palmer et al., 2016

by the Armed Forces) and the process of ‘developing understanding’ which involves reconfiguring relationships with others and self by committing to therapy.

Stevellink and Fear (2016) examine how vision loss affects the psychosocial wellbeing of female ex-Service personnel specifically. Participants, out of whom approximately 1 in 10 screened positive for probable depression, probable PTSD, or alcohol misuse, describe how becoming visually impaired is accompanied by irritation, frustration, anger, shock and feeling low. Overall, after taking some time to come to terms with their visual impairment, participants occasionally feel angry and depressed but think they have ‘the tools to cope’ (Stevellink and Fear, 2016, p.3).

Experiences of transition to civilian life

The transition to civilian life is experienced differently and influenced by experiences within the Armed Forces. Woodhead (2013) identifies combat exposure as a factor that affects the process of adjustment to civilian life. Assigning participants to either the typology of ‘positive/neutral adjusters’ or ‘negative adjusters’ based on the coping mechanisms used, the research finds that it is much more common for negative adjusters to have been involved with combat, while most of those adjusting well to the transition typically had camp-based roles away from combat area.

Adjustment is also experienced differently by those who are discharged from military service due to a medical condition. In Lovatt’s (2017) qualitative research with veterans with PTSD, medical discharge is experienced by ex-Service personnel as a traumatic process exacerbating existing mental health problems. When having to leave the military, participants report feelings of shock, betrayal and confusion. Veterans encounter challenges in readapting to civilian social norms. Hatton (2016) points at their difficulties in resuming practices, such as civilian humour, etiquette and language. Having to start over or feeling undervalued in the civilian world makes ex-Service personnel feel isolated and distressed. Some personnel transitioning from the Armed Forces describe loneliness and social isolation, accompanied by the feeling that they have few civilian friends, which contrasts with the experiences of close bonds within the Armed Forces for many serving personnel (Sharp, 2015).

Hatch (2016) finds that there are differences in levels of social integration between serving and ex-Service personnel, with the latter having less social interaction outside work and disengagement with military social contacts. The study also reports that social network size is inversely associated with PTSD symptoms. This shows how important social connections and informal support are in helping deployed personnel to resume lives at home.

Studies describe different approaches to maintaining links with military peers after completing Service. On the one hand, Lovatt’s (2017) study suggests that ex-Service personnel may navigate transition by distancing themselves from the military. Distance from former peers may be motivated by the need to forget traumatic memories that are brought back by meeting their military ex-colleagues. However, Caddick (2015) shows that the way veterans make sense of their peer relationships is complex, as ex-Service personnel may use military connections as a form of peer support in dealing with problems associated with PTSD.

Impact on personal relationships

The experiences associated with serving in the military, such as transition to civilian life and living with a mental health condition, can have an impact on interpersonal relationships. The report on the family engagement programme published by FiMT (Brian Parry Associates, 2015) considers the impact of veterans' transition to civilian life on the emotional wellbeing of family members. It discusses transition as a period when both the veteran and their partner experience changes in their roles and sense of identity. For example, partners have to return to joint decision-making after having spent long periods of time apart, having been used to being sole-decision maker during such periods. Murphy et al.'s (2017b) qualitative study of the experiences of female partners who are living alongside partners diagnosed with PTSD suggests that this requires adaptation to the other person's needs. These changes, for example, the introduction of a caring role, can create strain as veterans may struggle to cope with feelings of inadequacy or guilt in no longer contributing to the relationship in the way they may have once been able to.

Lovatt (2017) and Caddick et al. (2015) also examine the impact that PTSD can have on relationships. Symptoms that interfere with sleep, such as flashbacks, may mean it is necessary for Service-leavers and their partners to sleep in separate beds, resulting in a loss of intimacy (Lovatt, 2017). Veterans perceptions' that their partners are unable to understand their military experiences can lead to veterans' distancing themselves from their partners, which in turn contributes to relationship breakdown (Caddick et al., 2015).

The partners of veterans with PTSD also experience emotional strain, due to having to take on the role of carer, and in so doing, prioritising their partners' needs over their own.⁸⁴ Doncaster et al. (2015) and Murphy et al. (2017b) report on the experiences of female partners of ex-Service personnel diagnosed with PTSD, arguing that there is a lack of research on this group as caregivers. Partners of veterans who feel emotionally distant and isolated due to difficulties in communicating, describe a lack of intimacy in their relationships linked with the feeling that they cannot approach other veterans for emotional support (Doncaster et al., 2015). Murphy et al. (2017b) also refer to how behaviours of avoidance and emotional numbing in veterans affect their partners' wellbeing. This emotional distress is reported to be exacerbated by a lack of wider social support. Additionally, partners of veterans can experience practical inequalities within the relationship, as activities and resources are primarily devoted to the needs of veterans.

Research around impact of military service and mental health on relationships is largely qualitative, drawing on the experiences of veterans' partners. However, one study by Rowe et al. (2013) analyses the impact of deployment on romantic relationships by exploring associations between relationship changes and stages of military experience (pre-deployment, deployment and post-deployment) with personnel deployed to Iraq between 2003 and 2006. After adjusting for demographic factors, the authors find no significant association between deployment to Iraq and negative or positive relationship change. However, they identify individuals suffering from PTSD and other common

⁸⁴ Doncaster et al., 2015; Murphy et al., 2017; Murphy et al., 2016

mental health problems as a group of personnel at risk of experiencing relationship breakdown.

Mental health problems in partners of veterans

Three included studies focus on the experiences of mental health problems among female partners of UK veterans diagnosed with PTSD (Murphy et al., 2016; Murphy and Palmer et al., 2017; Doncaster et al., 2015). It is important to note that we did not find any studies exploring the mental health of male partners of serving and ex-Service personnel. The studies describe the psychological distress experienced by partners of veterans, touching upon conditions, such as secondary traumatic stress (STS), generalised anxiety and a range of other symptoms of mental health conditions. Secondary traumatic stress refers to trauma reactions that mirror symptoms of PTSD, which are linked to listening to reports of a family member's exposure to suffering (Doncaster et al., 2015). Indeed, findings reveal that women describe a range of mental health difficulties: PTSD, depression, agoraphobia, fear, anger, worry, sleep problems, somatisation, self-blame and hopelessness (Murphy et al., 2016). The literature explains that caregivers of sufferers of PTSD are at increased risk of developing mental health problems because PTSD is associated with interpersonal problems and impaired social functioning, which negatively affects the quality of relationships (Murphy et al., 2016).

It is noteworthy that the women participating in the research by Doncaster et al. (2015) tended to depict their own difficulties as being linked to those of their veteran partners', but their descriptions were more in line with general distress (such as anxiety, depression, hopelessness, stress and burn-out) rather than suggestive of PTSD or STS. However, a few of the participants report some mental health problems that mirror their partners' PTSD symptoms. The fact that partners listen to veteran's accounts of traumatisation, however, does not always result in distress. On the contrary, finding out more about what their partners have been through allows some women to have a more compassionate understanding of experiences during service. The enhanced knowledge about the challenges faced by veterans can decrease partners' sorrow caused by relationship deterioration (Doncaster, 2015).

Impact on children

Two studies look at impact of deployment on relationships with children and children's mental health (Doncaster et al., 2015; Rowe et al., 2014). Doncaster et al. (2015) report that the manifestation of mental health difficulties among civilian parents are a risk-increasing variable for secondary traumatic stress in children of combat-exposed veterans. In the study authors describe how women interviewed feel responsible for protecting their offspring from the negative effects of living with PTSD/trauma. Despite their efforts to shield children from the family's struggles, some participants reflect on how their children display signs of distress that are linked to their parents' difficulties. The authors believe this finding supports the idea that all individuals within a system are likely to be affected by trauma and cannot be considered in isolation.

Rowe et al. (2014) analyse the perceived effects of a military career on serving personnel's children. They use data from Phase 2 of the KCMHR cohort to analyse

participants' views on their careers impact on their children. Just over half (51%) of serving personnel thought their military career affects their children in a negative way. The following characteristics were associated with this view: deployment (those deployed for 13 months or more within a three-year period), not being in a relationship and having symptoms of a common mental disorder or probable PTSD. The findings of this study support existing evidence on the negative impacts of excessive deployment lengths, which has informed the UK military's Harmony Guidelines that state a unit should not be deployed for more than 12 months within a three-year period.⁸⁵

6.4 Help-seeking and accessing support

This section synthesises the evidence regarding stigma and disclosure, experiences of help-seeking and accessing mental health support.

6.4.1 Stigma and disclosure

The following section presents evidence regarding the stigma of mental health conditions - both anticipated and experienced as well as disclosure of mental health problems. Stigma of mental health is a recurring theme across the included evidence base. The studies discuss various aspects of this complex concept – holding self-stigmatising attitudes and anticipating and experiencing negative judgments from others (e.g. the general public, family, friends and colleagues) – that act as a barrier to help-seeking for both serving and ex-Service personnel. The section also discusses the relationship between stigma and military culture.

Self-stigma

A number of studies discuss self-stigmatising attitudes where a person attributes negative mental health stereotypes to themselves (Sharp, 2015; Mellotte et al., 2017). These internalised negative views, such as shame or embarrassment at having a mental health condition can act as barriers to seeking help (Sharp, 2015; Mellotte et al., 2017). Hatton's (2016) qualitative work with veterans shows that most participants refer to PTSD as both a mental and physical condition in order to distance their conditions from what they consider to be 'madness'.

Anticipated stigma

A common theme in the included studies is that of anticipated negative judgments from others for disclosing or sharing a mental health condition. For example, studies report on ex-Service personnel not seeking help because of fear of not being believed (Rafferty et al., 2017; Mellotte et al., 2017; Sharp, 2015). Moreover, the fear of being perceived as weak or cowardly may delay help seeking until personnel have left the Armed Forces (Sharp, 2015). Ex-Service personnel express concern that their families will no longer believe that they are brave if they require help for mental health problems when they leave the Forces (Sharp, 2015; Kiernan et al., 2017). Sharp (2015) finds that participants with higher levels of anticipated public stigma overall were 36% (or 1.5

⁸⁵ <https://www.kcl.ac.uk/ioppn/about/difference/11-protecting-the-wellbeing-of-uk-armed-forces>

times) less likely to seek formal/professional help than those with lower anticipated stigma.

Experienced stigma

Research confirms the existence of prejudiced attitudes towards those with a mental health condition.⁸⁶ Jones et al. (2013) survey non-deployed personnel and find that 30% feel that those with mental illness should not be given any responsibility. They also find that only two-thirds (65.9%) would continue a relationship with a friend who developed a mental health problem, and only one in two (49.9%) would work with someone with a mental health problem. A minority (17%) agree that they would think less of a colleague receiving mental health treatment.

Self-stigmatising attitudes among ex-Service personnel are exacerbated by experiences of discrimination and prejudice from family, community and military colleagues towards those with a mental health diagnosis (Kiernan et al., 2017). Interviews with help-seeking participants receiving support from Combat Stress reveal veterans feel stigmatised by friends and ex-colleagues who distanced themselves from them after finding out they had a mental health problem and were seeking treatment (Sharp, 2015). In semi-structured interviews with nine male veterans, Hatton (2016) also finds that some veterans experienced stigmatised attitudes from their families and others and felt this to be a threat to their masculinity.

Stigma and norms of behaviour in the military

Stigma related to mental health conditions is closely bound up with ideas of traditional norms of behaviour in the military (Sharp, 2015; Kiernan et al., 2017; NHS, 2016). Traits typically associated with military conduct, such as a sense of emotional guardedness, self-sufficiency and reluctance to discuss personal feelings, can lead to delays in self-realisation or acceptance of a problem (Sharp, 2015).

Several studies point to the perceived lack of support in the military as contributing to the reluctance to seek help for mental health. Serving personnel in Sharp's (2015) research discuss concerns that the Armed Forces are not interested in trying to treat mental health problems and would rather not address the issue due to the potential scale of the problem. Jones (2013) also finds that 65% of serving personnel thought that the military does not support personnel with mental health problems. Ethnographic studies of deployed service providers, such as Army Medical Officers (MOs) and Army Unit Welfare Officers (UWOs), show that the 'silence' around help-seeking for mental health problems is also evident in support roles (Keeling et al., 2017). According to Keeling et al. (2017), MOs and UWOs describe how military culture hinders help-seeking because of fear of being perceived as weak or malingering and a preference for self-management.

For many ex-Service personnel, continuing to identify with the military and its cultural norms acts as a barrier to seeking help for mental health problems even after leaving service. Mental health professionals agree that veterans face difficulty accessing care

⁸⁶ Hatton 2016; Jones et al. 2013; Kiernan et al., 2017; Sharp 2015

because they come from a culture that emphasises strength and self-reliance, which can make it difficult to admit that they need help (NHS, 2016). In relation to treatment for alcohol related problems specifically, a key barrier to engagement in alcohol services is that acceptance of a problem challenges veterans' military identity (Kiernan et al., 2017).

Lovatt's (2017) qualitative study exploring the experiences of veterans who have left the military through medical discharge highlights the culture of 'putting on a front' (p.65). One view expressed by participants in the study is that the military does not openly acknowledge the presence of PTSD in personnel. Participants also discuss the process of concealing their own emotions in response to feeling ashamed and fearful. Despite evidence suggesting that military culture is closely identified with 'masculine norms', Sharp (2015) finds evidence that seeking help is perceived as 'brave' (p.130). Some help-seekers refer to masculine norms having a positive effect on help-seeking, while some non-help-seekers describe looking for support as an action that would require 'moral courage'.

Fear of impact of diagnosis on career

Research indicates that mental health stigma is closely linked with perceptions of potential impact on military career (Jones et al., 2013; Jones et al., 2016; Fertout et al., 2015). Jones et al. (2013) find that the most common barriers to seeking help for mental health problems are fear of being treated differently by unit leaders, fear of members of the unit losing confidence in them, and potential harm on their career. Similarly, Fertout et al.'s (2015) analysis of survey responses from Service personnel during deployments to Iraq and Afghanistan indicates that the key component of stigma of help-seeking among military personnel is the potential loss of credibility and trust. Service personnel report concerns that by disclosing a mental health problem and receiving support for it, this information will be retained on their medical records and affect their Armed Forces career prospects. Examples include no longer being able to be deployed, being signed off work, and missing out on promotion opportunities (Sharp, 2015).

According to Keeling et al. (2017), the close-knit community of military bases adds to the sense of not wanting to seek help amid privacy concerns. The medical and unit welfare officers who took part in the study report that serving personnel also request that their medical meetings are not recorded to protect their confidentiality, amid worries that attending a medical appointment could lead to them being classed as medically unfit.

Anti-stigma campaigns

Rafferty et al.'s (2017) study of male veterans who had left the Armed Forces within a five-year period reveal that anti-stigma campaigns around mental health in the media and online in recent years are perceived to have helped some ex-Service personnel in their decision to seek help. Keeling et al. (2017) find that providing education on mental health problems (including contact with serving personnel who had positive experiences of accessing services) supported help-seeking.

6.4.2 Experiences of disclosure

There is limited evidence on experiences of disclosing a mental health condition to colleagues, families or friends. Jones et al. (2016) find that willingness to discuss mental health matters was high among participants - 86.2% were willing to discuss with family and friends, and 85.1% with military colleagues. They also find a relationship between willingness to disclose and perceptions of unit cohesion, as higher levels of cohesion at initial survey predicted willingness to discuss at the six-month follow-up. Sharp (2015) highlights how some personnel are reluctant to disclose mental health problems triggered by bullying by their own unit leaders. Participants fear that disclosing their condition might lead to formal proceedings against the unit leader and in turn cause potential backlash from their unit colleagues.

A few studies emphasise the potentially positive role of disclosure in normalising mental health problems and providing reassurance to seek help. For example, veterans in Rafferty et al.'s (2017) study reported receiving positive responses from colleagues when they disclosed, which reaffirmed the acceptability of seeking mental health support. In addition, in some instances disclosure is found to serve as a step towards receiving support, as discussing mental health problems with others (such as a partner) can enable recognition of the problem and can play a role in the decision to seek help (Murphy et al., 2017b).

6.4.3 Help-seeking

This section discusses the evidence relating to the extent to which serving and ex-Serving personnel access different types of services available.

Serving personnel

There is limited recent evidence available on the extent to which serving personnel seek help. Two included studies report estimates of help-seeking rates among serving personnel using self-reported measures (Hines et al., 2014a; Jones et al., 2013). They both draw comparisons between help-seeking for mental health and general medical conditions, and across different mental health conditions. Hines et al. (2014a) compare rates of seeking treatment for mental health conditions with 'medical' problems in a sample of personnel drawn from Phase 2 (2007-2009) of the KCHMR cohort. They find that out of service members reporting stress or an emotional problem, 42% sought help. In contrast, 85% of those with a general medical problem report seeking medical help. The authors conclude that this highlights a reluctance specifically associated with accessing mental health support.

There is also evidence that help-seeking rates vary by condition, with estimates indicating that help-seeking for alcohol disorders is lower than for other mental health conditions. For example, Hines et al. (2014a) find that among those with alcohol problems, a third (31%) report having sought help. A study by Jones et al. (2013) finds further evidence for this by showing that the majority (70.3%) of personnel classified as probable harmful alcohol users the majority did not seek help.

Ex-Service personnel

Two studies providing evidence on the prevalence of help-seeking among ex-Service personnel conclude that help-seeking for mental health conditions is delayed after leaving the military (Kiernan et al., 2018; Murphy et al., 2017b). Reasons for this delay are discussed throughout this chapter and include a desire to deal with problems independently, fear of disclosure, lack of perceived support, and difficulty recognising or identifying symptoms as a mental health problem. A qualitative study designed to understand help-seeking behaviour among ex-Service personnel with alcohol misuse problems finds that veterans access meaningful help, on average, eight years after being discharged from the Armed Forces (Kiernan et al., 2018). Delayed help-seeking is also evident in the sample of veteran help-seekers using the services of Combat Stress over a one-year period (2016-2017), where 46% of their sample required 11 years or more to seek support (Murphy et al., 2017b). The authors find that length of time taken to seek support was associated with severity of PTSD symptoms.

Murphy et al. (2017a) examine the multiple deprivations experienced by veterans with mental health difficulties. They find that veterans with mental health difficulties are more likely to reside within areas of the UK at higher risks of deprivation and point out that those experiencing deprivation are more likely to postpone help-seeking.

Families

There is little evidence regarding the prevalence of help-seeking amongst families of ex-Service personnel. However, FiMT's report (Brian Parry Associates, 2015) on the needs of Service leaver families suggests that take-up of events and services provided by the MOD and voluntary organisations was poor at the time of writing (no quantitative estimates available).

6.4.4 Preferences/choices when accessing support

This section discusses the evidence relating to the types of services available to serving and ex-Service personnel.

In-Service support

Personnel have access to different types of mental health support whilst serving in the military, such as medical treatment provided by doctors, mental health specialists or medical officers; support sought through the chain of command, or support by Trauma Risk Management (TRiM) practitioners. TRiM is a peer delivered support system, available to military personnel who have been exposed to trauma. The evidence shows that there are differences in the proportion of personnel accessing and receiving support from these different sources.

In a sample of deployed UK Army personnel, 36.9% were help-seekers. Of these, 20% looked for support from non-medical sources (friends, colleagues, the unit chain of command or TRiM Practitioner), compared to 8.8% from military medical sources (mental health professionals, doctors and regimental medical officers) (Jones, 2013). This pattern was observed across a range of conditions (probable PTSD, CMD and

alcohol-related disorders). The authors note that their findings reflect previous research that also shows that serving personnel are more likely to seek help from non-medical services.

Two studies discuss the role of the chain of command in help seeking. For example, Sharp (2015) finds a large discrepancy between awareness of the chain of command, and willingness to use it. Whilst 87% of participants with a current or resolved stress, emotional or alcohol problem were aware of it, the number of personnel willing to use this source of support was much lower, at 37%. Whilst willingness to use the chain of command is also low in Jones' (2013) study, the unit chain of command still comprises the second most frequently accessed type of support among a non-deployed sample of serving personnel.

A further study offers some insight into the role of Welfare Officers who are trained by the Army Welfare Service to provide support to personnel around a range of welfare related issues, including mental health. Welfare officers interviewed by Bull et al. (2015) express concern around their role and do not feel able to give advice on mental health. This suggests that while welfare staff are in place and available to serving personnel and their families, they may not be fully equipped to deal with mental health problems.

The other type of military specific support mentioned in included studies is TRiM. For example, in an ethnography of military medical service members deployed in Afghanistan, De Rond and Lok (2016) describe how personnel are able to access a field mental health team and TRiM practitioners (i.e. colleagues trained in psychological first aid who can provide peer support). Whilst TRiM is designed to manage the risks of exposure to trauma, the included evidence shows low levels of awareness and use (Sharp, 2015; Jones et al., 2013).

National Health Service support

Accessing support from medical sources available to the general public, such as through an NHS GP, is a key pathway for seeking help for ex-Service personnel. A qualitative study with ex-Service personnel who had left the Armed Forces in the last five years finds that the most common route to receiving care involved going to a Medical Officer (if serving) or GP (if ex-serving) (Rafferty et al., 2017). These two access points are described as the first port of call, with GPs often directing veterans to other services, such as charities, to avoid NHS waiting lists. Similarly, in a sample of help-seekers recruited from Phase 3 (2014-16) of the KCMHR cohort study (61% of whom were ex-Service personnel), just under 60% said that they had spoken to or sought help from at least one formal/professional source, with a GP/medical officer the most utilised by ex-Serving/serving personnel, respectively (Sharp, 2015).

The evidence illustrates that seeking help from medical professionals is a common pathway throughout the typical 'lifecycle' (from Service to ex-Service) of military personnel. There are a range of possible options for ex-Service personnel, which may include referral to a charity (Rafferty et al., 2017) or to an NHS mental health service. Since the publication of the 'Fighting Fit' plan in 2010, the NHS in England now provides a range of veteran-specific mental health services (NHS, 2016). However, the

review also shows that there is limited evidence around the types of support accessed by particular groups such as families of serving or ex-Service personnel. A report by FiMT (Brian Parry Associates, 2015) suggests that specific provision for families of Service leavers is limited as family members are not actively identified as a specific target group by the NHS.

Voluntary sector

The voluntary sector plays an important role in the provision of mental health support for military personnel and their families. The most frequently mentioned provider of mental health support across the reviewed studies is Combat Stress⁸⁷, a national charity which provides mental health treatment and support to UK veterans.⁸⁸ Among those who responded to the NHS engagement programme in 2016, Combat Stress was the non-NHS organisation that most people said they had contacted (NHS, 2016). However, included studies reporting on help-seeking also mention other charities, including Help for Heroes, which runs the 'Hidden Wounds' programme that delivers CBT at two recovery centres in England for veterans and their families (Farrand et al., 2018).

Informal sources of support

Several studies on help-seeking refer to 'informal' support and define it as receiving help through family, friends and colleagues. Accessing support informally is a popular method amongst both serving personnel and ex-Service personnel, and often overlaps with other types of help-seeking. Sharp (2015) finds that out of those that had sought any formal or professional help, 86% had also sought informal help. Serving personnel place high value on their unit and the support network it provides (Kiernan et al., 2018). Jones et al. (2013) find that seeking help from family and friends was the preferred type of support (82%) and the most used for mental health problems. Similarly, 71.2% of deployed females in Woodhead's (2013) study say that would want to talk to family/friends about their experiences.

6.4.5 Experiences of help-seeking and accessing support

This section discussed the experiences of serving and ex-Service personnel and families when accessing and using support.

In-Service support

Whilst the evidence focuses on experiences of mental health support among ex-Service personnel, there were some studies that report on what it is like to access and receive treatment while serving. The evidence, although limited, indicates a range of experiences, both positive and negative. Ex-Service personnel with alcohol problems interviewed about their help-seeking behaviour report positive experiences about the help they received during their military service and were nostalgic about this in comparison with their experiences of mental health support as civilians (Kiernan et al.,

⁸⁷ Combat Stress offers a 6-week residential treatment course for veterans with PTSD, as well as shorter term treatment, home visits, occupational therapy, and a 24-hour mental health helpline.

⁸⁸ Hallett, 2012; Hatton, 2016; Lovatt, 2017; Palmer, 2016; Sharp, 2015

2018). On the other hand, a less recent study by Hallett (2012) describes experiences specifically of an army psychiatric ward as “impersonal and bleak” (p. 67).

Jones et al. (2013) describe that while there is support onsite for service providers and other military personnel while deployed (e.g. TRiM Services, services provided by the church or the clergy), these services are not actively promoted internally. This reinforces the perceived culture of silence around the psychological impact of work in a warzone. The same report also finds that 24.6% of serving personnel feel they lack knowledge of where to get help in the Armed Forces, and 13.2% believe that mental health services are not available within the military.

Murphy et al. (2014) explore factors which facilitate active Service Personnel seeking help which include value having a sense of control over treatment, for example, by having autonomy over their treatment plans or choosing whether or not to inform colleagues.

Support during transition to civilian life

Two studies discuss experiences of leaving the military as a result of mental health problems and report a common theme of experiencing a lack of support, and thus feeling deserted by the Armed Forces (Hallett, 2012; Lovatt, 2017). In Hallett’s (2012) study, participants report feeling abandoned by the Armed Forces and disappointed in the perceived lack of interest and provision of care once they had completed service. Similarly, ex-Service personnel interviewed about their experiences of medical discharge report feeling ignored, and of feeling frustrated that they had to leave, rather than feeling they were being offered support (Lovatt, 2017).

Four studies discuss the lack of awareness among service leavers regarding the availability of mental health support, or ways to access it, when transitioning from the military to civilian life⁸⁹. In a questionnaire run by the NHS (2016), 71.5% of veterans (who reported that they believed they have a mental health condition but have not received treatment) agreed that they were not aware of veteran-specific NHS services and 72.4% said that they could not find information about what services were available. Veterans also felt there was a lack of NHS GP awareness of NHS services available to veterans with mental health problems, with 64.4% of veterans feeling that their GP did not know enough about this.

The studies discuss particular difficulties in accessing care among those transitioning from the military to mainstream health services. Ex-Service personnel describe difficulties accessing care when having to prove their ongoing entitlement to receiving help outside the Armed Forces (Rafferty et al., 2017). Veterans interviewed by Rafferty (2017) had their support stopped as soon as they registered with an NHS GP, which meant some had to then wait for a new NHS referral, with no mental health support provided in the interim.

⁸⁹ Farrand et al., 2018; Murphy et al., 2016; NHS, 2016; Sharp, 2015

Ex-Service support: civilian mental health services

Studies discussing how military personnel experience the practicalities of receiving treatment through NHS specialist mental health services for veterans present a diverse range of experiences, both positive and negative. Whilst some veterans experience long waiting times and feel disappointed over the number of sessions available (Mellotte et al., 2017), others express a preference for receiving care through NHS veteran-specific mental health services due to the perception that waiting times are lower than for mainstream services (NHS, 2016).

Accessing services for ex-Service personnel can be difficult and frustrating, particularly for those who present to services with complex conditions and who may not receive a single diagnosis.⁹⁰ Another reported issue is a potential lack of continuity of care, with high turnover of mental health professionals sometimes meaning that individuals have to recount traumatic experiences several times (Sharp, 2015; NHS, 2016).

A practical barrier to accessing treatment is around eligibility and being unable to receive help through services, such as Improving Access to Psychological Therapies (IAPT) due to having multiple mental health problems (Rafferty et al., 2017). Indeed, a report by FiMT (Brian Parry Associates, 2015) shows that when ex-Service personnel or their family members present with mental health problems that do not meet the required standard to be eligible for a diagnosis/NHS treatment, support is often provided by third sector organisations.

The reviewed studies also comment on how personnel experience the content of mental health therapy provided through civilian mental health services, such as the NHS or charities. Personnel who access services feel limited in their options for treatment if only presented with one option (such as medication) and do not always feel that they receive the care they need (Sharp, 2015; Kiernan et al., 2018). Veterans interviewed by Hallett (2012) refer to a series of negative experiences with GPs, therapists, and mental health workers, who were unsuccessful in diagnosing and treating the mental health problems that the veterans were struggling with. Not receiving adequate support for conditions which they themselves did not fully understand added to the veterans' sense of confusion and isolation.

A key experience associated with accessing support through the NHS (both mainstream and veteran-specific) was related to the importance of their feeling 'understood'. The perception that healthcare professionals (such as GPs) lack knowledge in relation to PTSD can make it difficult for some to disclose mental health problems directly related to military service.⁹¹ In cases where veterans received treatment through NHS veteran-specific services, they valued having contact with someone who they perceived to be knowledgeable and aware of their military background (NHS, 2016; Mellotte et al., 2017). Professionals' use of military terminology allows veterans to feel safe, normal, not alone in experiencing issues and able to build trust in others (Mellotte et al., 2017).

⁹⁰ Hallett, 2012; Hatton, 2015; Kiernan et al., 2018; Sharp, 2015

⁹¹ Hatton, 2016; Kiernan et al., 2018; Mellotte et al., 2017; NHS, 2016; Kiernan et al., 2017; Rafferty et al., 2017

The Northern Hub for Veterans and Military Families (Kiernan et al., 2017) finds that punctuality, attendance, and organisation of services provided to veterans is important in order to reflect the military environment and foster familiarity. Specific and tailored services can also improve the experiences of those at whom they are targeted. Female partners of veterans in Murphy et al.'s (2017b) study were positive about the value of receiving support tailored to their status (as a partner of a veteran) as well as to their own personal circumstances. Positive experiences of receiving treatment were also related to perceived tangible benefits, such as being taught coping techniques that could be put into practice immediately (Rafferty et al., 2017).

Ex-Service support: charities

As noted in the previous section, charities play a large role in the provision of mental health support, particularly for ex-Service personnel. Service Charities' involvement in providing treatment and support is seen as beneficial by users because of the consistency of support, and for their role in ensuring personnel get the support they need, from the appropriate provider (Kiernan et al., 2018).

Turgoose et al. (2018) assess the effectiveness of teletherapy amongst a veteran population; this is a therapeutic intervention for mental health conditions delivered via electronic remote mediums, such as via Skype on a home computer. Findings show that the increased flexibility and individual control over the service users' treatment environment helped to facilitate their help-seeking behaviour. For example, not having to travel to somewhere unfamiliar appears to alleviate anxiety and help with engagement (Turgoose et al., 2018).

For ex-Service personnel, one of the key experiences associated with receiving support from a charity appears to be related to the formation of strong peer relationships. Often, ex-Service personnel perceive their civilian family and friends as unable to fully understand their experiences (Woodhead, 2013). Charities that provide mental health support to ex-Service personnel provide an opportunity to foster peer relationships with fellow military personnel. Two studies focus specifically on how veterans experience this type of therapy - Hallett (2012) focuses on Combat Stress, and Caddick's (2015) study looks at a surfing charity which is specifically for veterans with PTSD. Both state that these environments can re-create the close-knit unit that the veterans were members of whilst serving, illustrating the significance of military group identity (Hallett, 2012; Caddick et al., 2015).

Reflecting views on acceptability of NHS services mentioned earlier, the acceptability of care in charities is also thought to be improved by ensuring interventions bare some relation to an Armed Forces context, as ex-members of the Armed Forces and their families feel more confident in such circumstances that they will be understood (Farrand et al., 2018). In addition, a trusted and familiar context delivered by a community-based organisation working outside the Armed Forces (such as Help for Heroes) is felt to be important for promoting trust and a belief that any discussion of mental health difficulties will remain confidential. However, Farrand et al. (2018) also find that some veterans have a desire not to be treated in the military context by their therapist, but as an individual with a mental health problem that can be resolved. This

points to the need for flexibility in service provision to meet individual needs and comfort levels.⁹²

Informal support

The evidence shows that support and encouragement from family and friends facilitates help-seeking behaviours among serving and ex-Service personnel.⁹³ According to Murphy et al. (2014), supportive social networks are a key factor in encouraging personnel in seeking or continuing treatment. Knowing that others are experiencing similar issues or are simply there to help seems to result in a sense of hope that things could improve and a feeling of normalisation. In a questionnaire with regular serving personnel, Jones and Coetzee (2018) find that the most important drivers for seeking help include being encouraged to seek help by a partner, friend, family member or medical professional.

Rafferty et al. (2017) also find that veterans appreciate the role that other people can play in the identification and definition of a problem, by helping them to understand that they might have a mental health problem. However, Palmer et al.'s (2016) qualitative study into post-traumatic growth, shows that the support network must also be well-informed to enable positive growth as a result, such that they understand the individual and their situation (e.g. their previous trauma).

The recognition from veterans that their mental health problems are having an effect on their partner or their family can facilitate help-seeking, which is either realised on their own, or as a result of an 'ultimatum' from those individuals that they must get help (Sharp, 2015; Hatton, 2016; Kantor et al., 2017). The desire to save relationships and the recognition that the negative effect or 'burden' illness is having on their partner and or family is a key motivator to change (Sharp, 2015; Kantor et al., 2017). Similarly, desiring a relationship in the future may lead to the realisation that the mental health problems they are experiencing need to be dealt with (Hatton, 2016).

Experiences of help-seeking among families

The types of barriers to help-seeking experienced by families of serving and ex-Service personnel mirror some of those faced by military populations. Partners of veterans diagnosed with PTSD experience stigma related to help seeking, for example, feeling "worried about what others would think" and that no one would understand them, in terms of seeking treatment or support for mental health problems (Murphy et al., 2016, p.7).

In one study families of personnel leaving the military express concern around confidentiality within Armed Forces support (Brian Parry Associates, 2015; Kantor et al., 2017). This means that families of serving personnel may prefer to seek help from independent organisations (such as 'Relate' - a relationship support service which includes couples' counselling) rather than services provided by the military, due to concerns around confidentiality and how this might affect their partners' careers (Brian Parry Associates, 2015).

⁹² Kantor et al., 2017; Mellotte et al., 2017; Rafferty et al., 2017; Turgoose et al., 2018

⁹³ Kantor et al., 2017; Mellotte et al., 2017; Palmer et al., 2016; Rafferty et al., 2017; Sharp, 2015

Stakeholders interviewed for a study by FiMT (Brian Parry Associates, 2015) were of a view that the families of Service leavers, unlike Service leavers themselves, are not typically identified nor prioritised by the NHS. Some report a lack of understanding within the NHS of the Armed Forces Covenant and the obligations that this provides for families, such as 'to be treated sympathetically' (p.16). Relatedly, where the Service leaver and/or family members have mental health problems that 'do not meet the criteria' for a recognised diagnosis and NHS treatment, support is often provided by third sector organisations if the NHS does not recognise the need for immediate support (p.16).

In Doncaster et al.'s (2015) study, female partners of veterans describe a 'hierarchy of disability' within the military, such that their veteran partners feel that men with physical injuries from war should be considered true heroes, not those with mental health problems like themselves. This belief seemingly reduces the validity of their own issues and increases a sense that they are not deserving of care.

Partners of veterans also face practical barriers to help-seeking. Families transitioning from overseas postings face some practical issues resulting from not being registered with a UK GP and not having the proof of local residence required to register (Brian Parry Associates, 2015). Other practical barriers include difficulty getting time off work and childcare responsibilities (Murphy et al., 2016); an issues related to travel, time and finances (Murphy and Palmer, 2017; Brian Parry Associates, 2015).

6.4.6 Evidence gaps

Of our 38 included studies, 13 focus solely on serving personnel, 18 solely on ex-Service personnel, and one discusses both. Most studies refer to male-only populations. Six focus on the families of military personnel, typically female partners. Only one reports on children of serving or ex-Service personnel. Since the review by the MHF in 2013, we found limited new evidence on the experience of mental health conditions and behaviours among female military personnel, and among male partners and children of military personnel. The evidence base does not explore experiences of mental health problems for Reservists or for Early Service Leavers specifically.

7 Findings: Effectiveness

Chapter highlights

Overview:

In this chapter we report the findings of 82 impact evaluations exploring the effectiveness of interventions to address mental health problems in serving and ex-Service personnel and their families. We combine study results through statistical meta-analysis. For four UK studies, we also explore barriers and enablers to intervention effectiveness.

Key findings:

- Cognitive Behavioural Therapy (CBT) is effective on average at reducing difficulties with sleep (SMD 1.13 or an approximate reduction of 24.6%, statistically significant) as well as symptoms of stress and associated disorders including PTSD (SMD 0.80 or a reduction of 18.5%, statistically significant). There is also evidence that CBT can improve outcomes such as mood disorders, anxiety and fear, and other mental health outcomes, though these findings are not statistically significant.
- Meditation and mindfulness interventions (including yoga and breathing techniques) are effective on average at addressing symptoms of stress, including PTSD (SMD 0.74, or a reduction of 17.4%, statistically significant), anxiety and fear (SMD 0.73, or a reduction of 17.2%, statistically significant), physical health and wellbeing (SMD 0.58, or an improvement of 13.8%, statistically significant) and mood disorders (0.42, or a reduction of 10.3%, statistically significant). Meditation and mindfulness interventions may improve sleep quality and other mental health outcomes, though these effects are not statistically significant.
- Medication may be effective for some outcomes, such as stress, and other associated disorders including PTSD, mood disorders and substance use or addiction (not statistically significant). However, the evidence indicates that on average medication is ineffective at reducing sleep disturbance for Service and ex-Service personnel.
- Substance misuse and gambling interventions can reduce substance use or addiction (SMD 0.14, by 3.6%, statistically significant).
- Advice and support interventions were not found to improve the following outcomes: physical health and wellbeing; stress and associated disorders including PTSD, mood disorders, suicide, self-harm, substance use or addiction; and other mental health-related outcomes.
- This evidence review did not find any studies concerning the effectiveness of EMDR or psychoanalysis interventions. However, studies about the effectiveness of EMDR are known to be ongoing (see Chapter 8).
- Wellbeing interventions (such as exercise or arts) appear to improve physical health and wellbeing (not statistically significant). These interventions may also improve mood disorders (not statistically significant), but there is evidence that indicates they are ineffective for stress and associated disorders and for other mental outcomes.

7.1 Introduction and chapter overview

This chapter explores the international⁹⁴ evidence base on the effectiveness of interventions to support the mental health needs of serving and ex-Service personnel and their families. It also summarises the evidence regarding barriers and enablers to the effectiveness of interventions for UK serving and ex-Service personnel. We synthesise the findings of included studies through statistical meta-analysis and a narrative summary of the evidence where meta-analysis was not possible. Statistical meta-analysis is the combination of data from multiple independent studies on the same topic in order to synthesise their results and determine overall trends.

The Technical Annex (Phillips et al, 2020b) Chapter 6 section 6.3 presents information for all included studies, summarising research methodologies, the populations reported on, interventions, and outcomes evaluated. Studies were included if they were:⁹⁵

- Published from October 2012 until September 2018 or were included in an earlier Mental Health Foundation (2013) review.
- Impact evaluations (causal quantitative studies with an experimental or quasi-experimental design) or Evidence reviews (systematic reviews and meta-analyses).
- Studies that evaluate interventions designed to address mental health conditions and related needs for serving and ex-Service personnel and their families.
- Studies of populations from: UK, Australia, Canada, Denmark, France, Germany, Israel, Netherlands, New Zealand, Norway, Sweden, USA.

7.2 Evidence base

A total of 82 studies in 81 papers met our inclusion criteria.⁹⁶ Two of these studies employ a Propensity Score Matching approach (PSM),⁹⁷ while the other 80 are Randomised Controlled Trials (RCTs).⁹⁸ An overview of the characteristics of the evidence base covered by this chapter is provided in Chapter 8, Evidence Map. A full list of all studies included in this chapter is provided in Chapter 11, References.

⁹⁴ As we expected to find only a small UK literature exploring intervention effectiveness, we also included impact evaluations of interventions from countries deemed similar to the UK. We included studies from Australia, Canada, Denmark, France, Germany, Israel, Netherlands, New Zealand, Norway, Sweden, the UK and U.S.A. The list of countries was drawn up with advice from the review's advisory group.

⁹⁵ For more details, please see Chapter 1 in the Technical Annex (Phillips, 2020b).

⁹⁶ 24 reviews also met our inclusion criteria for this domain. We did not incorporate these reviews into our synthesis but instead assessed all primary studies that each of them covers against our inclusion criteria and then added them to our meta-analysis. Such studies are included in the total of 82.

Throughout, a 'paper' is used to signify an individual publication. A 'study' is used to signify analysis of a unique dataset. Thus, a paper may include multiple studies and we include one paper including two separate studies (Bandura-Brack et al., 2015).

⁹⁷ This is a form of evaluation intended to estimate the causal impact of an intervention. A simple comparison between a group receiving an intervention and another group who do not receive it may be biased as the two groups may have different characteristics. PSM aims to reduce this bias by accounting for the characteristics that might predict receiving the intervention.

⁹⁸ An RCT is a type of experiment that involves randomly assigning subjects to two or more groups. One group receives an intervention, while the other(s) receive an alternative or no intervention. Outcomes are then measured for each group and compared (Higgins and Green, 2011).

A Table of Characteristics summarising the characteristics of all studies included in the Effectiveness domain is provided in the Technical Annex to this report (Phillips et al., 2020b), Chapter 6. It provides details on study author(s), date of publication, populations of interest, focus country (nationality of the population being studied), intervention evaluated and study design.

7.3 Approach to meta-analysis

In section 7.4, we report findings separately by type of intervention and outcome. For each intervention, where possible, we undertake meta-analysis to combine the results of multiple independent studies. The estimates are converted into 'standardised mean differences' (SMDs) so that studies using different scales can be compared. Where meta-analysis is not possible, we report study results narratively.

Lack of statistical significance reported in this chapter indicates that the statistical evidence does not meet the threshold set by the evaluator to conclude that the intervention has an effect on the outcome of interest. However, lack of statistical significance is not the same as saying that an intervention had no effect at all; a lack of statistical significance could result, for example, from only a small number of studies being included in the meta-analysis, or because intervention effects varied substantially across the studies.

Meta-analysis indicates the average impact observed across studies for a particular combination of intervention and outcome. However, the magnitude and direction of effects may still vary across the studies and contexts included in that meta-analysis. For example, if a meta-analysis finds that an intervention is effective on average, individual studies may still show that the intervention is ineffective or even harmful in some contexts. Findings presented in this chapter should therefore be interpreted as the effect of an intervention 'on average' and not as the effect of an intervention in all studies or contexts. Throughout, SMD estimates are also accompanied by estimates of 95% Confidence Intervals (CIs). This means that if 100 random samples were drawn from a population, the effect size estimate (SMD) would lie between the confidence intervals in 95 out of 100 of these random samples.

Where the results of a meta-analysis are statistically significant, we also report the estimated impact as a standardised percentage to aid interpretation. These are calculated using a 'binomial effect size display' (BESD) (Randolph and Edmondson, 2006). BESD are statistical constructs that rely on various assumptions. They are presented only to convey a more intuitive measure of the size of reported effects and should be interpreted cautiously.

In section 7.5 we explore the sensitivity of our results to the quality of included studies and by the length of follow-up to outcome measurement, or type of population subgroup (for example, serving versus ex-Service personnel). In section 7.6 we assess potential publication bias (whether publication or non-publication of included studies depends on the nature and direction of their findings).

Chapter 5 of the Technical Annex (Phillips et al, 2020b) contains further information on the meta-analyses presented in this chapter. This includes graphical illustrations of the

results called forest plots and diagnostic statistics. In addition, a brief glossary of technical terms is included, which may aid the reader.

7.4 The effectiveness of interventions to address mental health outcomes

We report findings by intervention type. Full definitions for each intervention type are provided at the start of each section.

- 7.4.1 Awareness, screening & prevention
- 7.4.2 Behavioural activation therapy
- 7.4.3 Cognitive Behavioural Therapy (CBT)
- 7.4.4 Family therapy
- 7.4.5 Wellbeing interventions
- 7.4.6 Meditation and mindfulness
- 7.4.7 Other therapeutic and wellbeing interventions
- 7.4.8 Medication
- 7.4.9 Interventions for substance misuse and gambling
- 7.4.10 Accommodation
- 7.4.11 Employment & education
- 7.4.12 Resettlement
- 7.4.13 Advice & support
- 7.4.14 Interventions not analysed for effectiveness

7.4.1 Awareness, screening and prevention interventions: main findings

We define awareness, screening and prevention interventions as programmes that attempt to screen for and identify mental health conditions, and/or raise awareness about such conditions, available support, or methods of coping. These interventions are used to treat or prevent disorders associated with substance use or addiction, stress, and associated disorders including PTSD, mood disorders and other mental health outcomes. Evidence is also found examining the impact of these interventions on outcomes associated with delivery, such as attendance at appointments, as well as physical health and wellbeing outcomes.

The evidence of the effectiveness of these interventions is drawn from a total of five studies carried out in the UK, U.S.A and Germany.⁹⁹ These studies examine the effectiveness of interventions among serving personnel, ex-Service personnel and Reservists.

The results of the meta-analysis of three studies of awareness, screening and prevention interventions on stress and associated disorders, including PTSD, show that on average these interventions have little or no impact on symptoms of stress (SMD

⁹⁹ Brown, 2013; Kilbourne et al., 2014; Mulligan et al., 2011; Rona et al., 2017; Wesemann et al., 2016

0.00 [CIs: -0.01, 0.01], not statistically significant) amongst those receiving these interventions.

Outcomes not included in the meta-analysis

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Brown et al. (2013) investigate the effect of a psycho-education programme on American combat veterans' cognitive anxiety (cognitive concerns) and physical anxiety (physical concerns), compared to combat veterans receiving treatment-as-usual. The study does not find any reduction in cognitive anxiety (SMD 0.05 [CIs: -0.39, 0.49], not statistically significant) or physical anxiety (SMD 0.12 [CIs: -0.32, 0.56], not statistically significant).

Kilbourne et al. (2014) are the only authors to report outcomes associated with delivery. They find no difference in the odds of U.S. veterans attending an inpatient or outpatient appointment at Veteran Affairs facilities implementing an enhanced patient outreach programme compared to those implementing a standard programme (SMD -0.02 [CIs: -0.09, 0.05], not statistically significant).

Rona et al. (2017) examine depression and anxiety among serving military personnel in the UK using a single outcome construct for both conditions. Our meta-analyses assess depression and anxiety as separate outcomes and therefore this study could not be included in either meta-analysis. The authors report no differences in the proportion of participants in either group (receiving either a health screening and tailored help-seeking advice, or general mental health advice only) being diagnosed with anxiety or depression one year later. Brown et al. (2013) also examine impact on depression and find that the psycho-education programme does not decrease symptoms of depression (SMD 0.11 [CIs: -0.33, 0.55], not statistically significant). Brown et al. (2013) is not included in a meta-analysis as it is the only study to examine depression (without anxiety).

Wesemann et al., (2016) examine the effectiveness of a German pre-deployment prevention programme designed to simulate extreme scenarios that may be experienced during deployment. General mental health is assessed 4-6 weeks post-deployment using the Global Severity Index (GSI) and the Brief Symptom Inventory (BSI). Findings show that those receiving the pre-deployment prevention programme have lower scores (indicating better general mental health) than matched controls (SMD -0.42 [CIs: -0.98, 0.15], not statistically significant).

One study looks at the effect of an awareness, screening and prevention intervention on sleep among UK serving personnel (Mulligan et al., 2011). The authors initially find no statistically significant differences in sleep problem scores among military personnel who receive a coping technique intervention, compared to those receiving the standard brief. However, after controlling for level of combat exposure, those receiving the

treatment intervention are shown to have statistically significantly better sleep scores (Mulligan et al., 2011).¹⁰⁰

Two studies include outcome measures related to substance use or addiction. Mulligan et al. (2011) find that military personnel receiving a coping technique intervention after deployment are less likely to be classified as binge-drinkers, compared to those receiving the standard post-deployment brief. Rona et al. (2017) do not report any differences in the proportion of serving personnel who misuse alcohol in the treatment group compared to the control group (SMD 0.00 [CIs: -0.05, 0.05], not statistically significant).

7.4.2 Behavioural activation therapy

We define behavioural activation therapy as a form of therapy designed to improve mental health and wellbeing according to principals of positive and negative reinforcement. Behavioural activation therapy helps understand how behaviours influence emotions, in a similar way that Cognitive Behavioural Therapy helps understand the connections between thoughts and emotions. It is most often used to treat depression but can be used for other disorders too and encourages patients to approach activities they may have been avoiding.

There are relatively few studies that assess the effectiveness of behavioural activation therapy among the military population.

A total of two studies are included in this analysis. Both studies examine the effect of behavioural activation therapy (the effectiveness of home-based behavioural activation therapy against in-person behavioural activation therapy) on ex-Service personnel in the U.S.A (Egede et al., 2015; Luxton et al., 2016). The two studies assess the effectiveness of the therapy on anxiety, mood disorders, PTSD and other mental health outcomes. The results of the meta-analysis indicate the relative effectiveness of home-based therapy as opposed to the in-person equivalent.

The results of the meta-analysis estimate the impact of behavioural activation therapy on depression scores (BDI). There is no difference on average in the relative effectiveness of the two versions of behavioural activation therapy (SMD 0.02 [CIs: -0.40, 0.43], not statistically significant).

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

¹⁰⁰ It was not possible to calculate the standardised mean difference in means for this study as all necessary information was not reported in the study.

One study assesses the impact of behavioural activation therapy on measures of PTSD, anxiety and hopelessness in American ex-Service personnel: (Luxton et al., 2016). The results indicate that in-person behavioural activation therapy is unlikely to be more effective than home-based therapy for treating anxiety (SMD 0.15 [CIs: -0.30, 0.60], not statistically significant), PTSD (SMD 0.05 [CIs: -0.40, 0.49], not statistically significant) or feelings of hopelessness (SMD -0.06 [CIs: -0.51, 0.39], not statistically significant).

7.4.3 Cognitive Behavioural Therapy (CBT)

Cognitive Behavioural Therapy is a widely used intervention for a range of psychological issues. It aims to help deal with overwhelming problems in a more positive way by breaking them down into smaller parts. Unlike other treatments, CBT typically focusses on current problems rather than focusing on issues from the past.

CBT is typically delivered on a one-to-one basis, though many studies included in this section test variants of this, such as group or tele-based CBT. We also included other variants of CBT, such as Cognitive Processing Therapy, Prolonged Exposure and Present-Centred Therapy in this intervention group. The evidence base consists of 26 studies, all from U.S. populations.¹⁰¹

CBT is found to have a positive impact on six out of the seven outcomes meta-analysed, though not all of these results are statistically significant. It is found to be particularly effective at reducing difficulties with sleep (SMD 1.13 [CIs: 0.54, 1.73], or a reduction of 24.6%, statistically significant) and reducing symptoms of stress and associated disorders including PTSD (SMD 0.80 [CIs: 0.15, 1.44], or a reduction of 18.5%, statistically significant). There is also evidence that CBT may be effective for a range of other outcomes, such as anxiety and fear, mood disorders and other mental health outcomes (not statistically significant).

However, CBT may on average negatively impact on suicide and self-harm (SMD -0.37 [CIs: -1.15, 0.42], not statistically significant), though this draws on a limited evidence base (2 studies).

Outcomes not included in meta-analysis

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

¹⁰¹ Acierno et al., 2017; Acierno et al., 2016; Badura-Brack et al., 2015; Buffington et al., 2016; Castillo et al., 2016; Foa et al., 2018; Gray et al., 2017; Hobfoll et al., 2016; LaCroix et al., 2018; Mack, 2013; Maguen et al., 2017; Maieritsch et al., 2016; Margolies et al., 2013; Nacasch et al., 2015; Rauch et al., 2015; Reger et al., 2016; Reysick et al., 2017; Reysick et al., 2015; Suris et al., 2013; Tuerk et al., 2018; Tylee et al., 2017; Wahbeh et al., 2016; Wolf et al., 2016; Yehuda et al., 2014; Yuen et al., 2015; Ziemba et al., 2014

Only one study (Wolf et al, 2016) investigates the effectiveness of present-centred therapy¹⁰² (PCT) and prolonged exposure¹⁰³ (PE) on female veterans and serving regulars with the dissociative subtype of PTSD¹⁰⁴ in the U.S. Therefore, it was not included in the meta-analyses. The study finds no statistically significant difference between the two interventions after six months for veterans with this subtype of PTSD (SMD 0.21 [CIs: -0.26, 0.69], not statistically significant).

7.4.4 Family therapy interventions

We define family therapy as a psychotherapy focusing specifically on family relationships. Family therapy interventions can be made up of a number of different components and techniques to improve wellbeing, such as the introduction of emotion regulation strategies¹⁰⁵, couples' skill training¹⁰⁶, positive emotion activation¹⁰⁷ and psychoeducation.¹⁰⁸

Two studies examine the effectiveness of family therapy interventions on U.S. populations (Moriarty et al., 2016; Sautter et al., 2015). A range of outcomes including anxiety, mood disorders, PTSD, as well as other mental health outcomes are assessed. For the purposes of this analysis, 'other mental health outcomes' include relationship adjustment (which assesses the scores from both partners to determine the level of satisfaction or dissatisfaction they are experiencing), and partner burden (which refers to subjective perceptions of negative mental health outcomes, such as distress, that are attributed directly to the burden of caregiving).

The two meta-analyses draw on a limited evidence base and consequently there is a large level of statistical uncertainty. Family therapy may on average be an effective intervention for improving 'other mental health outcomes' (SMD 0.26 [CIs: -0.13, 0.64], not statistically significant). Family therapy has on average, no or limited effect on mood disorders (SMD 0.00 [CIs: -0.53, 0.53], not statistically significant).

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on

¹⁰² PCT is a non-trauma focused treatment for PTSD. The goal is to focus on present life while recognising the connection between PTSD symptoms and current struggles.

¹⁰³ Prolonged exposure is a specific type of CBT that teaches individuals to gradually address trauma-related memories, feelings and situations.

¹⁰⁴ In addition to meeting full criteria for PTSD, those with a dissociative subtype of PTSD may also have dissociative symptoms, such as depersonalisation or derealisation and emotional detachment.

¹⁰⁵ Emotion regulation strategies can include any strategies that will help reduce certain emotions, such as talking to relatives or partners.

¹⁰⁶ These include therapies addressing couple communication.

¹⁰⁷ Positive emotion activation focuses on finding behaviours and activities that will enable positive emotions such as enthusiasm and hope.

¹⁰⁸ Psychoeducation refers to the process of providing education and information to those seeking or receiving mental health services and to their families. It teaches patients and family members problem-solving and communication skills and provides education and resources in a supportive environment.

a specific combination of intervention and outcome. Therefore, their results are presented individually below.

One study reporting outcomes not included in the meta-analyses examines the impact of family therapy on anxiety among ex-Service personnel and their partners, and on PTSD among ex-Service personnel in the U.S. (Sautter et al., 2015). Family therapy is found to be an effective treatment for ex-Service personnel with PTSD. The ex-Service personnel display a considerably greater reduction in PTSD after three months compared to those receiving an information-based intervention made up of lectures and discussions about PTSD (SMD 1.57 [CIs: 0.86, 2.23], or a reduction of 31.12%, statistically significant).

The authors also report an improvement in anxiety after three months among both ex-Service personnel (SMD 0.59 [CIs: -0.04, 1.23], not statistically significant) and their partners (SMD 0.19 [CIs: -0.43, 0.81], not statistically significant). While the greater decrease in anxiety scores among veterans may indicate that family therapy interventions could be more effective for this group than their partners, the greater reduction of anxiety among veterans could also be attributed to the greater anxiety observed in this group prior to receiving the intervention.

7.4.5 Wellbeing interventions

We define wellbeing interventions as those that are designed to improve different aspects of social, emotional and physical wellbeing. These can include a variety of different activities and therapies, such as exercise, nature adventure rehabilitation and expressive writing.

We include a total of seven studies examining the effectiveness of wellbeing interventions for Service and ex-Service personnel in the U.S.A, UK and Israel.¹⁰⁹ These studies examine the impact of these interventions on anxiety, treatment delivery, mood disorders, other mental health outcomes, physical health and wellbeing, stress and associated disorders including PTSD, socio-economic outcomes as well as substance use or addiction.

The impacts for delivery (SMD 0.18 [CIs: -0.28, 0.65], not statistically significant), physical health and wellbeing (SMD 0.20 CIs: [-0.06, 0.50], not statistically significant) and mood disorders (SMD 0.20 [CIs: -0.32, 0.73], not statistically significant) indicate that wellbeing interventions could be effective at improving these outcomes. However, wellbeing interventions do not appear to have a substantive effect on stress and associated disorders including PTSD, or on other mental health outcomes.

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on

¹⁰⁹ Gelkopf et al., 2013; Greenberg et al., 2010; Johnson et al., 2018; Krupnick et al., 2017; Mackintosh et al., 2017; Sayer et al., 2015; Shea et al., 2013

a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Krupnick et al. (2017) examine the effectiveness of wellbeing interventions on alcohol misuse in the U.S. The authors report a slightly decreased AUDIT¹¹⁰ score 24 weeks post-treatment among those who received a wellbeing intervention significant (SMD 0.34 [CIs: -0.87, 1.57], not statistically significant).

Shea et al. (2013) also assess outcomes associated with fear and anxiety and find that, in the U.S., individuals receiving a wellbeing intervention are likely to report lower levels of distress at the end of treatment (SMD 1.47 [CIs: 0.32, 2.63], or a reduction of 30.72%).

Sayer et al. (2015) examine levels of reintegration difficulty among ex-Service personnel in the U.S. and find that those who took part in an expressive writing intervention experience fewer difficulties than those who did not take part in a writing task (SMD 0.22 [CIs: 0.07, 0.04], or a reduction of 5.46%, statistically significant). The expressive writing group are also more likely to report having more social support (SMD 0.17 [CIs: 0.02, 0.32], or an increase in 4.23%, statistically significant).

7.4.6 Meditation and mindfulness

Meditation and mindfulness include Complementary and Alternative Therapies (CAMs), used in addition to or instead of conventional medical treatment (e.g. acupuncture, yoga and forms of meditation, such as Mindfulness-based Stress Reduction (MBSR). These interventions are used to address issues with physical health, stress and disorders associated disorders including PTSD, mood disorders, anxiety and fear, substance use or addiction and other mental health outcomes. The evidence is drawn entirely from U.S. populations, with a total of fourteen studies.¹¹¹

The evidence indicates that meditation and mindfulness may improve physical health and wellbeing and several mental health outcomes. Meditation and mindfulness interventions are most effective at reducing stress, most commonly symptoms of PTSD, (SMD 0.74 [CIs: 0.25, 1.23], or a reduction of 17.4%, statistically significant). There is also evidence that meditation and mindfulness can alleviate anxiety & fear (SMD 0.73 [CIs: 0.03, 1.44], or a reduction of 17.2%, statistically significant), physical health and wellbeing (SMD 0.58 [CIs: 0.24, 0.91], or an improvement of 13.8%, statistically significant) and mood disorders (0.42 [CIs: 0.26, 0.58], or a reduction of 10.3%, statistically significant).

Sleep disturbance (SMD 0.93 [CIs: -0.10, 1.96]) and other mental health outcomes (SMD 0.51 [CIs: -0.06, 1.08]) may also be improved by meditation and mindfulness interventions, though these findings are not statistically significant.

¹¹⁰ Alcohol Use Disorders Identification Test (AUDIT) is a 10-item screening tool to assess alcohol consumption, drinking behaviours and alcohol-related problems.

¹¹¹ Bremner et al., 2017; Cater et al., 2013; Church et al., 2013; Engel et al., 2014; Geronilla et al., 2014; Kahn et al., 2016; Kearney et al., 2016; Kearney et al., 2013; Oman and Bormann, 2015; Polusny et al., 2015; Possemato et al., 2016; Seppala et al., 2014; Wabeh, 2017

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Carter et al. (2013) assess the impact of a yoga breathing exercise programme on alcohol use for U.S. veterans from the Vietnam war. This was the only meditation and mindfulness study assessing impact on alcohol and substance misuse. The study finds evidence that this intervention reduced alcohol use (SMD 1.42 [CIs: 0.52, 2.33], or a reduction of 29.66%, statistically significant).

7.4.7 Other therapeutic wellbeing interventions

This group of interventions include accelerated resolution therapy, attention bias modification, and virtual reality exposure therapy. These interventions have been used to address stress and associated disorders including PTSD, mood disorders, anxiety, substance use, or addiction, as well as physical health and wellbeing.

The evidence is drawn entirely from U.S populations, with a total of five studies exploring the effectiveness of other therapeutic wellbeing interventions for serving regulars and veterans.¹¹²

The evidence indicates that on average, other therapeutic wellbeing interventions may actually increase PTSD, by 11.3% (SMD -0.47 [CIs: -0.90, -0.03], statistically significant), compared to control groups. Both studies test against other treatments and this may in part explain the negative findings, as the treatment-as-usual interventions may be more effective. In Kuckertz et al. (2014) the intervention is an attention bias modification treatment, whilst the control group is an attention control condition.¹¹³ In McLay et al. (2017), the intervention is a virtual reality exposure therapy whilst the control condition is a control exposure therapy.

There is also some evidence that other therapeutic wellbeing interventions, such as attention bias modification and telemedicine-based collaborative care¹¹⁴, have a negative effect on mood disorders (SMD -0.16 [CIs: -0.70, 0.39]), though this is not statistically significant.

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did

¹¹² Engel et al., 2016; Fortney et al., 2015; Kip et al., 2013; Kuckertz et al., 2014; McLay et al., 2017.

¹¹³ Attention bias modification aims to help individuals reallocate attention away from threatening information (i.e. attention bias) through systematic implicit training. Attention control training is used as a control condition as it is not designed to shift attention in any specific direction and enhance attentional control in the context of threats.

¹¹⁴ These aim to increase patient engagement with treatment of PTSD by providing a list of clinical services available on-site and off-site (via telephone).

not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Only one study, Fortney et al. (2015), assesses the impact of telemedicine provision for U.S. veterans. The study finds evidence that this intervention increases attendance at cognitive processing therapy sessions (0.8 [CIs: 0.53, 1.08], statistically significant). Another sole study, Kip et al. (2013), assesses the impact of accelerated resolution therapy on anxiety for U.S.¹¹⁵ service members and veterans. The study finds evidence that the intervention reduces cognitive anxiety (0.95 [CIs: 0.36, 1.55], or a reduction of 21.82%, statistically significant). However, the study does not find that the intervention had an impact on somatic anxiety.

7.4.8 Medication

Medication interventions include interventions, such as the administration of Methyl enedioxymethamphetamine (MDMA), prazosin, omega-3 fatty acids and other medications. These interventions have been used to address outcomes, such as stress and associated disorders including PTSD, mood disorders, anxiety and fear, sleep, substance use or addiction, and other mental health outcomes. The evidence on the effectiveness of medication consists of five studies, drawn entirely from U.S populations.¹¹⁶

There is evidence that on average, medication may have a positive impact across four outcomes, though the results are not statistically significant. Specifically, medication may improve mood disorders (SMD 0.62 [CIs: -0.63; 1.88], not statistically significant), other mental health outcomes (SMD 0.47 [CIs: -0.84; 1.77], not statistically significant), substance misuse or addiction (SMD 0.34 [CIs: -0.18; 0.87], not statistically significant) and stress and associated disorders, including PTSD (SMD 0.29 [CIs: -0.23; 0.80], not statistically significant). Medication does not appear to have a substantive effect on sleep disturbance (SMD 0.07 [CIs: -0.21; 0.35], not statistically significant).

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Dretsch et al. (2014) assess the impact of taking Omega-3 fatty acids on anxiety in U.S. serving regulars. The study finds the intervention has no impact anxiety (-0.3 [CIs: -0.75, 0.16], not statistically significant).

¹¹⁵ Accelerated resolution therapy is a form of psychotherapy using eye movements and voluntary memory and image replacement to change the way in which the negative images are stored in the brain.

¹¹⁶ Batki et al., 2014; Dretsch et al., 2014; Harris et al., 2015; Mithoefer et al., 2018; Raskind et al., 2018

Raskind et al. (2018) assess the impact of receiving prazosin for 26 weeks on suicidal ideation for U.S. veterans. Although the study finds evidence that the intervention significantly reduces the worsening, or number, of onsets of suicidal ideation (8% for placebo and 15% for treatment group, statistically significant), the authors did not provide enough information to calculate a standardised mean difference.

7.4.9 Interventions for substance use and gambling

We define this group of interventions as those that target drug and alcohol misuse and gambling, not included elsewhere. These interventions often involve training participants in developing motivational, cognitive-behavioural and self-control strategies (Brief et al., 2017) to reduce drinking or gambling.

The evidence is drawn from U.S populations except for one study from Switzerland (Gmel et al., 2013), with a total of seven studies exploring the impact of interventions for substance use and gambling.¹¹⁷

The evidence indicates that on average interventions for substance use and gambling reduce substance use and addictions by 3.6% (SMD 0.14 [CIs: 0.02, 0.27], statistically significant). These interventions include brief alcohol and substance misuse treatments¹¹⁸, alcohol care management programmes¹¹⁹, web-based personalised normative feedback alcohol interventions¹²⁰, computer simulation to practice relapse prevention skills.¹²¹

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Oslin et al. (2014) assess the impact of a primary care-based Alcohol Care Management program on treatment engagement in U.S. veterans. They find evidence that this intervention increases the mean number of visits to primary care practice over a six-month period (SMD 0.95 [CIs: 0.62, 1.27], or an increase of 21.46%, statistically significant). This shows that this intervention can improve treatment engagement.

¹¹⁷ Brief et al., 2017; Martens et al., 2015; McDevitt-Murphy et al., 2014; Oslin et al., 2014; Pedersen et al., 2017; Verduin et al., 2013

¹¹⁸ This is a short, structured conversation about alcohol/substance consumption with patients that seeks in a non-confrontational way to motivate and support the individual to think about and/or change their drinking behaviour.

¹¹⁹ Alcohol care management engages patients through medical records and verbal communication designed to reduce their alcohol consumption.

¹²⁰ This intervention provides normative feedback which compares participants' alcohol consumption with the average among their population and provides general information about alcohol and how their current drinking levels might affect them physically and financially.

¹²¹ This included computer scenarios emphasising several relapse prevention intervention techniques including identification of high-risk situations and drink-refusal skills.

7.4.10 Accommodation

Bourque et al. (2015) examine the impact of a Housing First intervention on homeless Canadian veterans with mental illness. The study considers two outcomes: quality of life and housing stability. Housing stability is defined as the proportion of days in a three-month period the veteran stayed in stable housing.

The study finds a significant improvement in veterans' quality of life six months after receiving the intervention (0.47 [CIs: 0.01, 0.92], or an increase of 11.48%, statistically significant). There is no evidence of a significant improvement later on, at twelve, eighteen, and twenty-four months post-intervention. The evidence indicates that after twelve months, housing stability may have improved (0.15 [CIs: -0.29, 0.59] not statistically significant).

7.4.11 Employment and education

Only one study assesses the effectiveness of employment and education interventions. These interventions include training and re-employment services and in-service and ex-Service education and signposting.

Davis et al. (2018) investigate the effectiveness of individual placement and supported employment on achieving steady employment amongst veterans with PTSD in the U.S. The intervention involves the provision of normal employment services, such as vocational assessment and individualised job searches in a clinic. The study finds positive impacts on employment duration (0.32 [CIs: 0.14, 0.51], or an increase of 8.02%, statistically significant), shorter spells of unemployment before finding a competitive job (0.55 [CIs: 0.36, 0.74], or a reduction of 13.34%, statistically significant). The study also finds higher income from work (0.20 [CIs: 0.01, 0.39], or an increase of 4.99%, statistically significant). However, there is some evidence that the intervention helped veterans with PTSD sustain competitive employment at a later follow-up period (18 months, 0.18 [CIs: -0.16, 0.51], not statistically significant).

7.4.12 Resettlement

Resettlement includes interventions that target the resettlement period for veterans, including advocacy and advice, community-based support, transition and re-integration support (including that received post deployment while still actively serving), and building mental health resilience through psychoeducation and the provision of a structure environment to unwind, relax and prepare for transition into civilian life.

The synthesised evidence is based on interventions involved in transition and re-integration, such as third location decompression¹²², or psychoeducation.¹²³ These interventions refer to the initial process undertaken by military personnel at the end of deployment whereby adjustment from military operations commences. These

¹²² Third location decompression programmes provide personnel with a structured environment to unwind, relax and prepare for transition to civilian life.

¹²³ Psychoeducation refers to the process of providing education and information to participants seeking or receiving mental health services.

interventions have been used to address outcomes, such as physical health and wellbeing, stress, and associated disorders including PTSD, mood disorders, anxiety and fear, substance use or addiction, and other mental health outcomes.

The evidence is drawn from two studies. The U.S study focuses on mobilised and non-mobilised Reservists (Shipherd et al., 2016), whilst the U.K study focuses on serving regulars (Jones et al., 2013). The evidence indicates that third location decompression and psychoeducation reduces PTSD by 1.9% (SMD 0.08 [CIs: 0.06, 0.09], statistically significant).

Outcomes not included in the meta-analyses

This section reports the findings of any studies whose outcomes were not included in the meta-analyses. Although these studies meet the review's inclusion criteria, they did not report enough information to be meta-analysed or were the only study reporting on a specific combination of intervention and outcome. Therefore, their results are presented individually below.

Shipherd et al. (2016) find no evidence that psychoeducation combined with change acceptance-based skills, or with change-based skills, impacts on a combined index measuring anxiety, depression and stress in the U.S.

Jones et al. (2013) assess whether third location decompression affected common mental disorders but find no substantive impact. Jones et al. (2013) also assess the impact of third location decompression on subjective health ratings of serving regulars in the U.K. The study did not find any evidence that this intervention improved health ratings or have an impact on substance use or addiction.

7.4.13 Advice and support

Advice and support can be provided in a number of ways. This includes peer support, advice on finances and family planning, support for carers, telephone monitoring, and support for family members. These interventions have been used to address outcomes, such as physical health and wellbeing, mood disorders, suicide and self-harm, substance use or addiction and other mental health outcomes.

The evidence is drawn entirely from U.S. populations, with a total of five studies exploring the effectiveness of advice and support interventions.¹²⁴

The evidence indicates that these interventions have a negligible effect on quality of life, PTSD, mood disorders, suicide and self-harm, substance use or addiction, nor other mental health outcomes.

7.4.14 Interventions not analysed for effectiveness

Two interventions, Eye Movement Desensitization and Reprocessing (EMDR) therapy and psychoanalysis are not analysed for effectiveness due to a lack of evidence. As

¹²⁴ Chinman et al., 2013; Eisen et al., 2012; Rosen et al., 2017; Rosen et al., 2013; Valenstein et al., 2015

detailed in the evidence map in Chapter 8, there are at least two ongoing studies assessing EMDR interventions, but at time of writing, the findings of these studies have not yet been published. These studies are investigating the effectiveness of EMDR therapy on several outcomes: satisfaction with care, physical health and wellbeing, stress, and associated disorders including PTSD, mood disorders, anxiety and fear, substance use or addiction and other mental health outcomes.

There is at least one study of the effectiveness of 3MDR (Motion-assisted, Multi-modular Memory Desensitization and Reprocessing) but it wasn't published prior to the final literature screening in September 2018.

7.5 Sensitivity analysis

We conducted sensitivity analyses to assess whether findings varied according to the risk of bias assessment of studies (Phillips et al, 2020b, Section 1.4.1), the follow-up period over which outcomes were measured, and the type of population group studied (for example, whether findings differ for serving versus ex-Service personnel). The sensitivity analyses produced results consistent with the analyses presented in section 7.4 and are reported in full in the Technical Annex (Phillips et al., 2020b).

7.6 Publication bias

If the publication or non-publication of studies depends on the nature and direction of the results, this may bias the results of the meta-analysis. Although the risk of publication bias may be mitigated by including unpublished studies or 'grey literature', publication bias may still occur.

This review tested for publication bias using the 'tandem procedure' outlined in Ferguson and Brannick (2012), which is explained in the Technical Annex (Phillips et al., 2020b).

The publication bias test found no indication that the meta-analyses presented in this review suffer from publication bias, as no meta-analysis failed more than one of the test criteria.

7.7 Barriers and enablers to effectiveness

This section narratively summarises the evidence regarding the barriers and enablers to the effectiveness of interventions targeting UK military populations. Whilst most of the evidence on effectiveness is based on studies of U.S. populations, we find four studies that evaluate the impact on UK military populations. Additional data extraction is undertaken on these four studies to identify factors that can explain intervention effectiveness.

Three of the studies evaluate post-deployment interventions involving either an awareness, screening or prevention element (Rona et al., 2017; Jones et al., 2013;

Mulligan et al., 2011). The fourth study (Greenberg et al., 2010) looks at the main in-serving wellbeing intervention (Trauma Risk Management or TRiM). The studies all report on interventions to address the needs of serving regulars. Three are randomised controlled trials, one uses propensity score matching (see Phillips et al., 2020b, Chapter 5).

7.7.1 UK effectiveness studies

Awareness, screening and prevention

Three studies evaluate the effectiveness of post-deployment interventions around awareness, screening and prevention (Rona et al., 2017; Jones et al., 2013; Mulligan et al., 2011).

Rona et al.'s (2017) study is the first UK randomised controlled trial of a post-deployment screening programme designed to reduce the prevalence of mental health disorders. The programme aimed to find out whether post-deployment screening to assess for possible PTSD, depression, anxiety and alcohol misuse, followed by provision of tailored help-seeking advice, is effective in reducing prevalence of these disorders. The study also sought to assess whether this model of screening and tailored advice, can have an impact on help-seeking behaviour and/or medication usage in those with a probable mental disorder. The authors find no evidence to indicate that screening and provision of tailored help-seeking advice post-deployment reduces prevalence of stress and associated disorders or depression and anxiety, nor does tailored help-seeking advice influence help-seeking. The authors suggest that the level of take-up may help to explain these findings: one third of participants in the screening group did not take up the tailored advice available to them between baseline and follow-up, which may reflect lack of interest, fear and apprehension, or mistrust of mental health services, all of which present as key barriers to this type of intervention.

The fact that the intervention assessed the prevalence of complex conditions, such as PTSD, over time, may have affected the results, as the authors note that most of the cases that presented with complex conditions such as PTSD at follow-up did not present with symptoms at baseline. This illustrates the complexity of measuring trends in, and impact of interventions on, the prevalence of mental health disorders. The design and setting of the screening programme are also important explanatory actors. The screening programme itself may not have produced the results the authors expected given that the intervention is an adapted, and less intensive, version of the U.S. programme. The programme may have been more effective if implemented fully (although the authors discuss the reasons for why the programme is adapted for a UK context). Alternatively, it may be that it is only effective in a U.S. context where PTSD prevalence is higher.

Jones et al. (2013) examine the effectiveness of Third Location Decompression (TLD), a type of post-deployment intervention intended to ease the transition and adjustment process after a period of deployment before returning home. The authors use propensity score matching to assess effectiveness of TLD on both mental health and post-deployment re-adjustment. Despite the fundamental aim of this intervention being to promote readjustment, rest and recuperation, the study finds that TLD had no impact

on levels of post-deployment adjustment. The authors conclude that the results have implications for whether the current UK model of TLD continues as the main approach to managing post-deployment transition. They point to a range of factors that may serve as barriers to its effectiveness, such as levels of engagement and commitment from personnel, which may be limited due to perceptions of TLD as an obstacle to be overcome before returning home, or because of the impact of traumatic stress symptoms on their ability to process information.

Whilst TLD is found to have no impact on post-deployment readjustment, the study concludes that it has a positive mental health effect, reducing levels of PTSD and alcohol use in attendees. Interestingly, the study finds that this effect is related to level of combat exposure. This effect is difficult to explain but it is suggested that those with moderate combat exposure are in a better position to engage with TLD, and have more to gain, compared with those who have higher exposure and potentially more PTSD symptoms.

The final UK study we found that focuses on post-deployment is an RCT of an intervention called 'Battlemind'¹²⁵. The study evaluates the impact of psychological debriefings on the mental health (CMD, PTSD and alcohol misuse) of UK personnel returning from deployment in Afghanistan (Mulligan et al., 2011). In the trial, Battlemind is compared with the standard UK post-deployment brief, to determine whether the U.S. version and its success is transferable to the UK Armed Forces. The study concludes that Battlemind does not perform better than the standard homecoming programme in improving mental health. However, it is found to have a modest impact on harmful drinking (assessed by AUDIT), as those who received Battlemind are less likely to be classified as binge drinkers than those receiving the standard brief when followed up at six months. Mulligan et al. (2011) highlight this as important considering the high prevalence of alcohol misuse in the UK military population.

Wellbeing interventions

The final UK effectiveness study we included assesses the impact of an in-Service wellbeing intervention on mental health (Greenberg et al., 2010) Trauma Risk Management (TRiM) is a system for the provision of peer support to individuals who have been exposed to trauma, with the aim of directing them to support/treatment if necessary.

Greenberg et al. (2010) report on the results of an RCT to assess the impact of TRiM on the mental health of Royal Navy personnel in 12 warships. The authors compare the impact of TRiM with the impact of standard care. The study also examines whether TRiM has an impact on stigmatising attitudes towards mental health. The results of the trial found that TRiM did not produce any improvements in mental health, nor did it have any negative effects. There is also no improvement in the stigmatising attitudes of personnel.

¹²⁵ Battlemind was adapted for the UK military context. The original U.S. intervention provides soldiers with psychological briefings and debriefings.

The authors mention that due to the lack of exposure to traumatic incidents in the study population, the use of TRiM and its ability to influence both mental health and attitudes towards mental health is limited. They hypothesise that TRiM could be beneficial in military environments where exposure to traumatic situations is higher, where TRiM is more frequently used. Furthermore, the nature of the Royal Navy's drafting policies meant that awareness and education around TRiM may not have been fully embedded due to personnel moving between ships. It is also stated that it may take longer than 18 months (the length of the trial) for attitudinal changes to occur.

7.7.2 Key barriers and enablers

The UK studies of mental health interventions show there are a range of factors that can hinder their effectiveness. Studies did not report on enabling factors. Key barriers identified across the four studies are listed below.

Barrier 1: The nature of mental health and attitudes towards mental health

The nature of mental health conditions being measured can serve as a barrier to how effective the intervention is at reducing prevalence or improving outcomes. Mental health disorders are complex and can manifest themselves in diverse ways, which can serve as a barrier to the effectiveness of certain interventions, such as post-deployment screening. Attitudes towards mental health can take time to shift, which may mean that short term interventions designed to influence attitudes will have a limited influence, or that studies measuring outcomes over a relatively short to medium term period, cannot capture this long-term trend.

Barrier 2: Intervention setting and characteristics

Two of the studies assess the effectiveness of U.S. based interventions which have been adapted and targeted at UK military populations. (Mulligan et al., 2011; Greenberg et al., 2017). Implementing interventions designed specifically for a different military context in the UK could be a barrier to their effectiveness. For example, it may be that an adapted version of an intervention does not have the same impact due to it being scaled down to suit a different setting. Characteristics of the military, such as structure and culture, as well as mental health prevalence, differ considerably between the U.S. and UK which may explain why U.S. initiatives, such as Battlemind do not have the same impact in the UK (Mulligan et al., 2011).

Barrier 3: Engagement and take-up

Interventions rely to some extent on the willingness of people to engage with the programme; Rona et al.'s (2017) study, for example, highlights that lack of engagement may be a particular barrier to the effectiveness of interventions that seek to influence help-seeking behaviours. Jones et al. (2013) discuss how personnel returning from deployment may not fully engage with the current model of post-deployment brief (TLD) they receive. Explanations include that: (1) younger personnel are typically of lower rank and therefore less able to exercise choice in attending TLD; (2) being a reserve as they are less likely than regular forces personnel to be part of a unit, (3) good leadership, as good leaders are more likely to ensure their personnel attend TLD.

Barrier 4: Target populations

The effectiveness of an intervention may also be mediated by characteristics of the population in receipt of it, such as their level of exposure to trauma or prevalence of mental health disorders, as shown by the results of studies by Mulligan et al. (2011) and Greenberg et al. (2011). Jones et al. (2013) discuss how personnel with a more severe or complex presentation of PTSD symptoms may be limited in their ability to process post-deployment briefings as part of TLD. On the other hand, TRiM may not be as well used or as effective for populations not exposed to trauma (Greenberg et al. 2011).

8 Evidence Map

Chapter highlights

Overview:

The evidence map provides a visual overview of evidence on the effectiveness of interventions to address the mental health of serving and ex-Service personnel and their families. The map includes all studies that met inclusion criteria for the Effectiveness domain of this review. In total it incorporates 119 studies, including: 82 impact evaluations; 13 'ongoing' impact evaluations; 24 evidence reviews and meta-analyses.

Key findings:

- There is a sizeable and growing body of evidence in this area. However, the evidence base is uneven in its coverage of different interventions and outcomes.
- The largest evidence base relates to the effectiveness of CBT, meditation and mindfulness wellbeing interventions, and outcomes, such as physical health and mental health conditions.
- Comparatively fewer studies report on the effectiveness of resettlement and accommodation interventions, education or employment skills interventions, and family therapy, or on outcomes, such as delivery (e.g., completion of treatment) and socio-economic outcomes.
- No included study evaluates the effectiveness of interventions on care pathways (e.g., referrals and speed of referral), satisfaction with care, or outcomes relating to families and caregivers.
- The evidence base is dominated by research on U.S. military populations (over 85 per cent of published impact evaluations), particularly U.S. veterans.
- It may be that some interventions and outcomes are more difficult to evaluate using the study methodologies included in the map, while others may be of lower research or policy importance. Future research should focus on areas of the map that are comparatively poorly evidenced but that are of particular value to policy, practice and research.

8.1 Introduction and chapter overview

Evidence mapping is an approach to cataloguing or describing the evidence base for a given thematic area (Haddaway et al. 2016; James et al. 2016; Miake-Lye et al. 2016; Snilstveit et al. 2017). The evidence map in this chapter provides a visual overview of evidence on the effectiveness of interventions to address the mental health and related needs of serving and ex-Service personnel and their families. As a result, the map includes studies that met inclusion criteria (summarised below) for this review's Effectiveness domain:

- Studies published from October 2012 onwards as well as any relevant studies from the MHF (2013) study and any ongoing studies that met the inclusion criteria.
- 'Impact evaluations' with an experimental or quasi-experimental design and systematic reviews or meta-analyses.
- Studies that evaluate interventions designed to address mental health conditions and behaviours for serving or ex-Service personnel and their families.
- Studies of populations from the following countries: UK, Australia, Canada, Denmark, France, Germany, Israel, Netherlands, New Zealand, Norway, Sweden, U.S.A.¹²⁶

For detailed inclusion criteria, see Technical Annex (Phillips et al. 2020b), Chapter 1.

In all, the map includes 119 studies:

- 82 impact evaluations - those included in the Effectiveness chapter
- 13 'ongoing' impact evaluations. These are impact evaluations that meet inclusion criteria for the map but were, at time of writing, not yet complete and published.
- 24 evidence reviews and meta-analyses

This chapter is intended to report our findings on the evidence base for interventions to support the mental health needs of serving and ex-Service personnel and their families and discuss which interventions are relatively well-evidenced and whether there are any evidence gaps (RQ4). The following sections of this chapter provide an overview of how the map works, then summarises what the map tells us about the pattern of available evidence. We then present the map. The chapter concludes with a short summary. We provide definitions of the different intervention and outcome categories that make up the map's framework in Tables 8.1 and 8.2. For a brief summary of the map methodology, see Chapter 3, Methodology. For a more detailed summary of the

¹²⁶ N.B. the systematic review includes different types of evidence for different research questions. For questions relating to prevalence and experience we only included UK evidence. However, for evidence about the effectiveness of interventions and the accompanying evidence map, we included international evidence, as the UK evidence base of rigorous evaluations is limited. See Chapter 3 Methodology for full inclusion criteria.

map methodology, see Technical Annex, Chapter 3 (Phillips et al., 2020b). For lists of all studies included in the map, see Chapter 11, References.

8.1.1 Interpreting the evidence map

The evidence map is made up of a framework of interventions and outcomes. Different categories of interventions are listed along the map's vertical axis; outcomes are listed along the map's horizontal axis. The evidence is then mapped into the intersections of the map, with each included study appearing for all categories of interventions and outcomes that it reports on. The map framework was drawn up following a review of literature and with reference to ICD-11 (WHO, 2018), and finalised following feedback from the review's advisory group.

The map is intended to provide an overview of what is known and what is not known for different types of intervention and outcome and therefore offers an overview of the available evidence base. In viewing this map, you can thus identify where there is a concentration of evidence or where the evidence is either missing or more limited and thereby indicate the availability of evidence to inform policies and programmes, as well as point to areas for future research.

The distribution of evidence in the map should, however, be interpreted with a degree of caution. The included evidence is restricted by the map's inclusion criteria, which are summarised in the introduction to this chapter. Notably, we restrict included studies to specific methodologies able to rigorously evaluate the effectiveness of interventions. Other sources of evidence may provide valuable insights about these interventions, including on the accessibility, suitability and appropriateness, and perceived usefulness of these services. Some intervention and outcome categories may also be thematically broader or thinner than others. In addition, empty cells, or those containing little evidence may represent a research gap but could also indicate a type of intervention or outcome that is of lower relevance to research, policy or practice. Likewise, areas with a large amount of evidence should not be interpreted as an indication that all relevant questions have been answered by existing research.

8.2 Map findings

In this section, we address **Research Question 4**: Which types of intervention to support mental health needs of serving and ex-Service personnel and their families are relatively well-evidenced and are there evidence gaps?

The evidence map (Figure 8.1) depicts included studies mapped on to the framework of interventions and outcomes. Blue bubbles represent *the number of impact evaluations* (both completed and ongoing) at a given intersection, while pink bubbles represent *the number of evidence reviews* that cover a given intersection. Larger bubbles depict a greater number of studies for a given intersection. If a study covers multiple interventions or outcomes, it is represented at multiple map intersections. Empty intersections indicate gaps in the literature where no evidence was found, signalling possible areas for future research. Tables 8.1 and 8.2 at the end of this chapter provide descriptions of each of intervention and outcome category.

Figure 8.1: Evidence Map



The size of bubble and the numbers within them indicate the volume of evidence. Turquoise bubbles indicate impact evaluations. Purple bubbles indicate evidence reviews.

Table 8.1: Descriptions of Intervention Categories

| Interventions | | Definition | |
|--|--|---|--|
| Psychological & wellbeing interventions | Awareness, screening & prevention | Interventions that aim to raise awareness about: | |
| | | - Mental health conditions | - Self-coping strategies |
| | | - Mental wellbeing | - Mental health campaigns |
| | | - Services and support | - Programmes to screen for and identify mental health problems |
| | | - Self-recognition of mental health problems | - In-Service interventions, such as Third-Location Decompression |
| | Behavioural Activation therapy | A therapy to treat depression, with the focus on increasing activity and positive behaviours. | |
| | Cognitive behavioural therapy (CBT) | CBTs are a range of talking therapies based on the theory that thoughts, feelings and behaviours are all connected. This category includes trauma-focused CBT, cognitive processing therapy and cognitive exposure therapy. | |
| | Eye movement desensitization & reprocessing therapy (EMDR) | EMDR is used in the treatment of PTSD as it is designed to resolve symptoms resulting from disturbing and traumatic life experiences. Also includes Motion-assisted, Multi-modular Memory Desensitisation and Reconsolidation (3MDR) | |
| | Family therapy | Family therapy: a type of psychological counselling or support focusing on family relationships | |
| | Psychoanalysis | Psychoanalysis: a type of therapy focusing on the interaction of conscious and unconscious elements in the mind | |
| | Wellbeing interventions | Interventions designed to improve social, emotional, or physical wellbeing, including: | |
| | | - Social prescribing | - Animal assisted therapy |
| | | - Interventions for resilience | - Art, music, drama |
| | | - Interventions for building relationships | - Writing |
| - Exercise | | - Anger management treatment | |
| | | - Traumatic Risk Management (TRiM) UK peer delivered trauma support programme. | |
| Meditation & mindfulness | | Includes Complementary and Alternative Therapies (CAMs), used in addition to or instead of conventional medical treatment e.g. acupuncture, yoga and forms of meditation, such as Mindfulness-based Stress Reduction (MBSR). | |
| Other therapeutic & wellbeing interventions | | Therapies that don't fit under psychotherapy or psychological interventions, including: - Allied Health Therapies provided by healthcare professionals, such as dieticians and occupational therapists. -Attention bias modification treatment and - Interventions to increase access to therapies | |
| Medication | | - Medications prescribed by a doctor (taking the medication) - Medication supervision, including reviews | |
| Interventions to address substance misuse & gambling | | Targeted interventions for drug misuse (including Performance and Image Enhancing Drugs or PIEDs), alcohol misuse and gambling not covered elsewhere. These include: - Steps programmes - Residential treatments | |
| Accommodation | | Supported accommodation provision for veterans | |
| Employment & education | | - Training and re-employment services/programmes - In-Service and ex-Service education and signposting | |
| Resettlement | | Interventions that target the resettlement period for veterans: | |
| | | - Advocacy and advice | - Transition/re-integration support |
| | | - Community-based | - Building mental health resilience |
| Advice & support | | - Peer support | - Advice on finance, family planning etc |
| | | - Support for carers | - Telephone monitoring after usual care |
| | | - Support for family/spouse/partner/children | |

Table 8.2: Descriptions of Outcome Categories

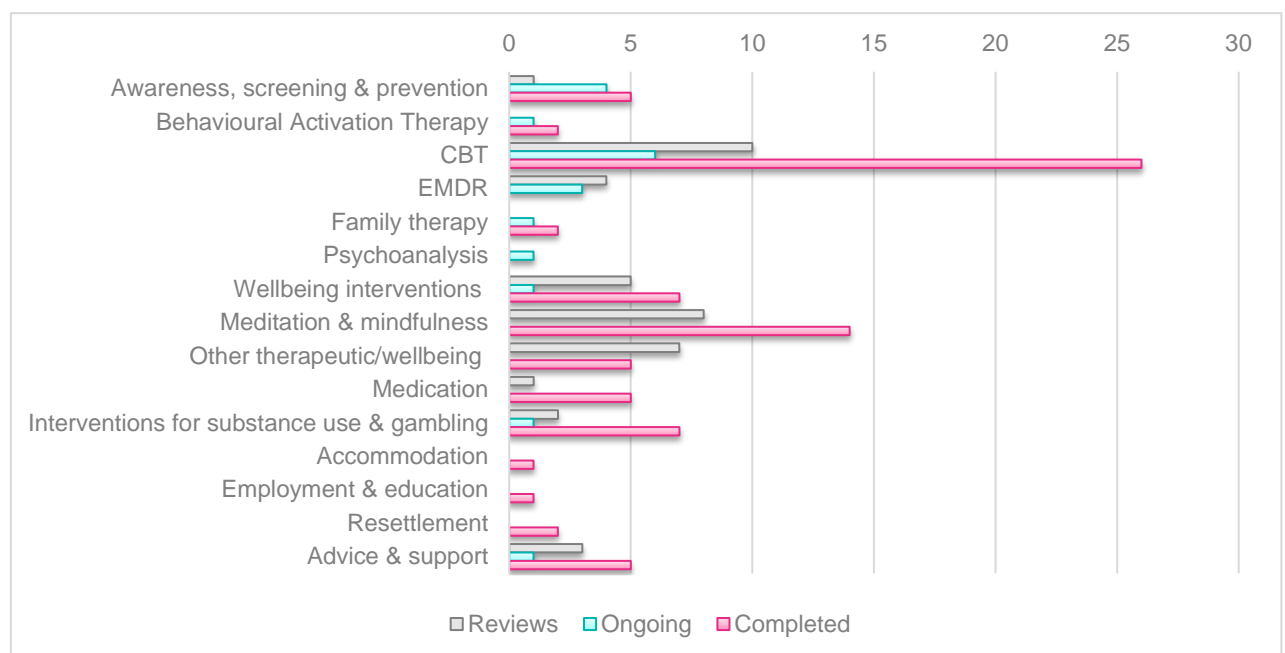
| Outcomes | | Definitions | |
|---------------------------------|---|--|--|
| Care pathways | | Includes: | |
| | | - Who and how referred | - Speed of referral |
| | | - Time waited for referral | |
| Delivery | | Includes: | |
| | | - Attendance | - Drop-out |
| | | - Medication / therapy adherence and completion | |
| Satisfaction with care | | Includes: | |
| | | - Satisfaction with care received | - Completion of treatment |
| Physical health & wellbeing | | Includes: | |
| | | - Self-reported quality of life | - Morbidity |
| | | - Physical fitness and exercise | - Health admissions/referrals: A&E, GP |
| | | - BMI | - Days/periods of sickness absence |
| | | - Sleep | - Pain |
| | | - Perceived (self-reported) physical health | |
| Mental health | Stress disorders including PTSD | Includes: | |
| | | - Posttraumatic Stress Disorder (PTSD) - Posttraumatic Growth | |
| | | - Complex Posttraumatic Stress Disorder (CPTSD) | |
| | Mood disorders | - Depression – symptoms or assessment | |
| | | - Bipolar disorder | |
| | | - Generalised Anxiety Disorder | |
| | | - Panic disorder | |
| | Suicide & self-harm | Includes: Suicide and self-harm behaviours / ideation | |
| | Disorders due to substance use / addictive behaviours | Includes: | |
| | | - Substance use and misuse: alcohol and drugs | |
| | | - Addictive behaviours, such as gambling | |
| | Dissociative disorders | Conditions involving disruptions or breakdowns of memory, awareness, identity, or perception, including: | |
| | | - Dissociative identity disorder | |
| | | - Disorders affecting cognitive function | |
| | Other mental health outcomes | Includes: | |
| | | - Self-esteem | - Violence |
| | | - Self-efficacy | - Risk-taking |
| | | - Perceived mental health wellbeing | - Spiritual and emotional wellbeing |
| | | - Anger | - Cognition (about self/world) |
| | | - Emotional regulation | - Positive or negative outlook |
| | - Loneliness | | |
| Burden on families & caregivers | | Includes: | |
| | | - Respite from caring duties | - Mental wellbeing |
| Domestic abuse | | Includes coercive control, verbal aggression, physical or sexual violence | |
| Socio-economic | | Includes: | |
| | | - Employment | - Social network and relationships |
| | | - Housing | - Deprivation |
| | | - Academic/educational attainment | - Criminal justice |

Distribution of studies across interventions

Figure 8.2 depicts the distribution of studies across the intervention categories contained in the map. The largest body of research examines CBT and related approaches, such as cognitive processing therapy and cognitive exposure therapy. Other interventions for which there is a comparatively large evidence base include meditation and mindfulness; interventions for substance misuse and gambling; wellbeing interventions, such as exercise or art therapy; medication; advice and support; other therapeutic interventions, such as those designed to increase access to therapies, and awareness and screening interventions.

The evidence base is more limited for resettlement and accommodation interventions and for those designed to provide education or employment skills. There is also comparatively little evidence exploring family therapy, behavioural activation therapy, psychoanalysis, or eye movement desensitisation & reprocessing therapy (EMDR). However, there is a significant number of ongoing studies exploring EMDR interventions, as well as for awareness, screening and prevention, and CBT.

Figure 8.2: Distribution of studies by intervention category



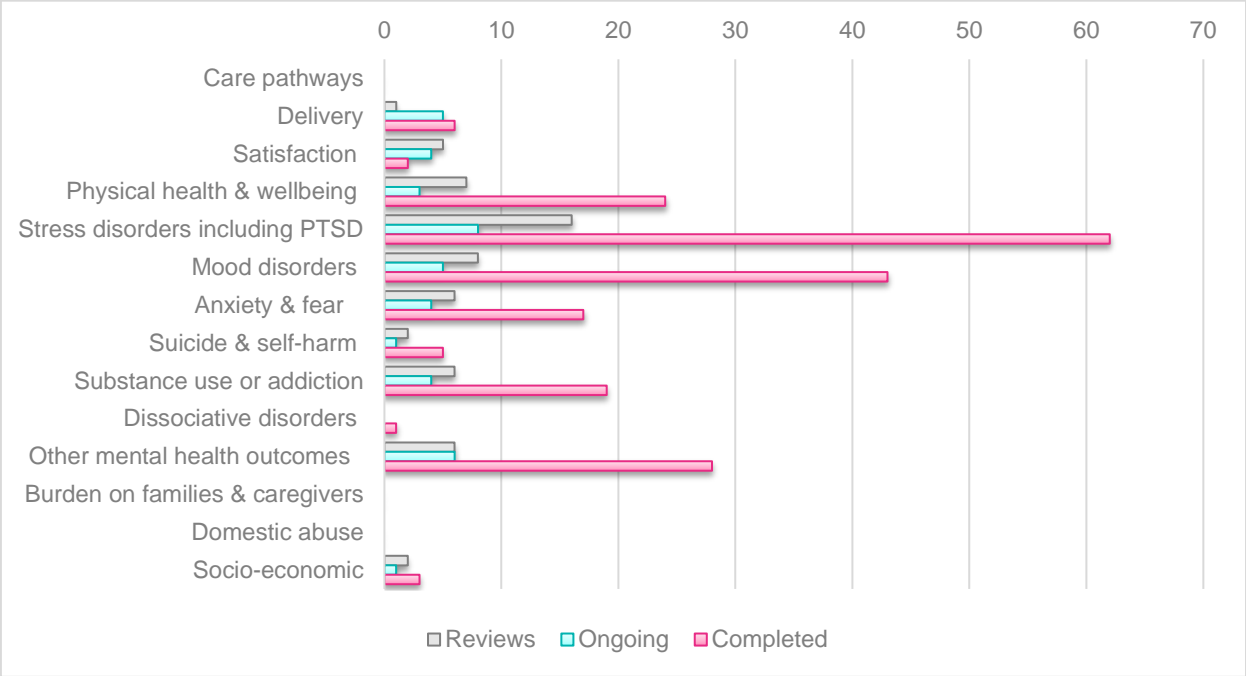
*Figure 8.2 totals sum to over 119 as studies may evaluate more than one intervention of interest

Distribution of studies across outcomes

Figure 8.3 depicts the distribution of studies across the outcome categories contained in the map. The largest body of evidence is for stress disorders including PTSD. Other outcomes for which there is a comparatively large body of evidence include mood disorders, physical health, substance misuse, anxiety and fear, and other mental health outcomes, such as self-esteem. The evidence base is comparatively smaller for early outcomes, such as care pathways (for example, referrals and speed of referral), delivery (for example, attendance or completion of treatment) and satisfaction with

care. However, a relatively large number of ongoing studies indicate that they may explore these early outcomes. There is also limited evidence for dissociative disorders, suicide and self-harm, and outcomes relating to families and caregivers or socio-economic outcomes

Figure 8.3: Distribution of studies by outcome category

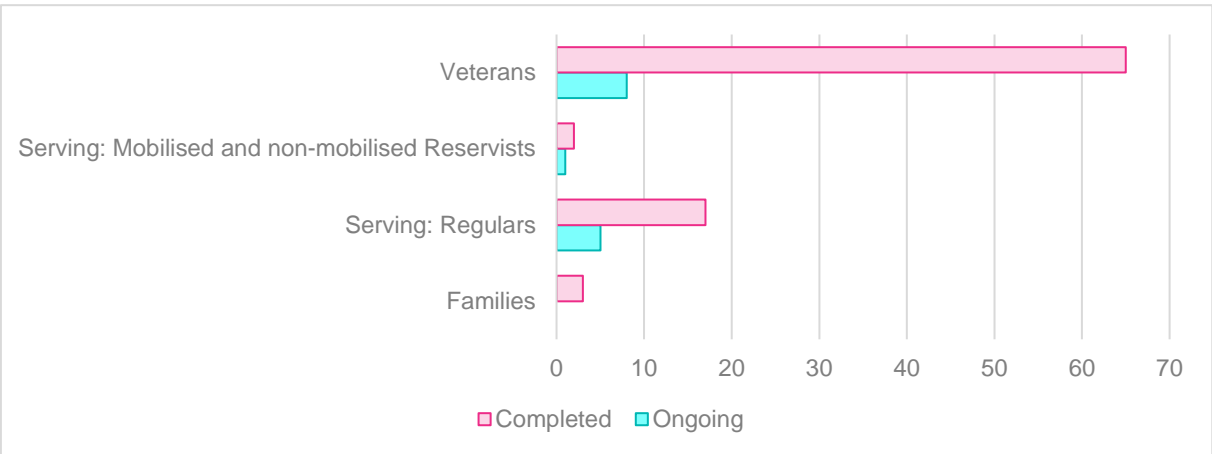


*Figure 8.3 totals sum to over 119 as studies may evaluate more than one outcome of interest

Distribution by population and country focus

Figure 8.4 depicts the distribution of impact evaluations across our populations of interest. The vast majority of completed impact evaluations (n=65) focus on veterans, with a far smaller evidence base for serving regulars (n=17), Reservists (n=2) and families (n=3).

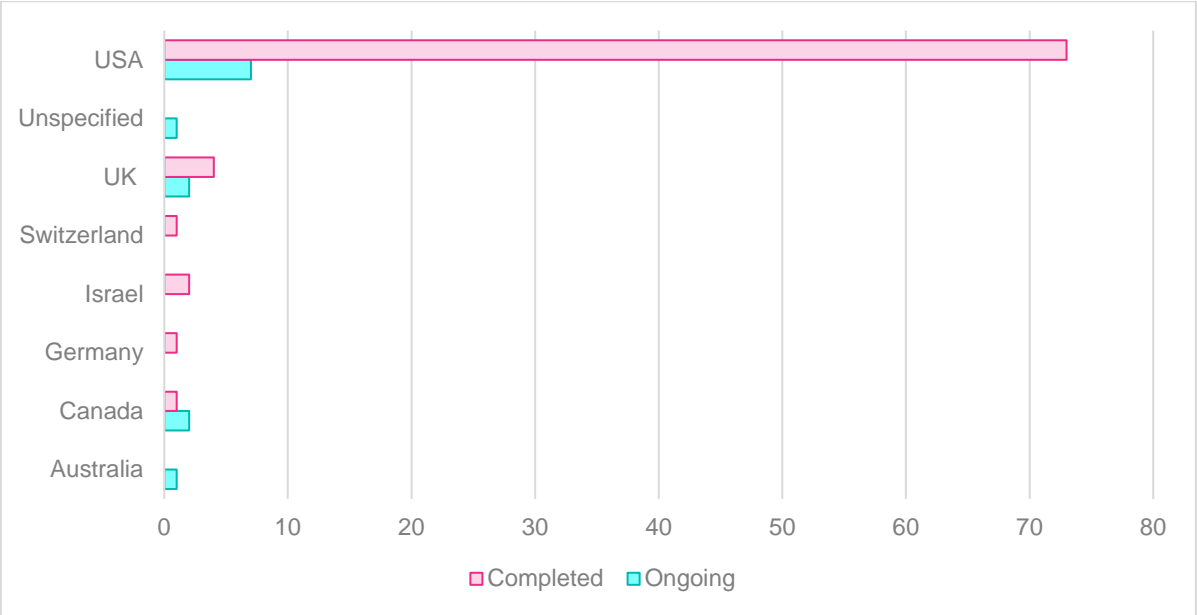
Figure 8.4 Distribution of studies by population type



*Figure 8.4 totals sum to over 95 as studies may evaluate outcomes for more than one population of interest

Figure 8.5 depicts the spread of impact evaluations by focus country – i.e. the nationality of the population being studied.¹²⁷ The country focus is heavily dominated by studies exploring interventions targeting U.S. military populations (n=73). Only a small number of completed impact evaluations cover UK military populations (n=4), while there is also evidence for Canadian (n=1), German (n=1), Israeli (n=2), and Swiss (n=1) Armed Forces personnel.

Figure 8.5: Distribution of studies by focus country



¹²⁷ Not necessarily the location of the study or nationality of the research team.

9 Stakeholder consultation

Chapter highlights

Overview:

We conducted in-depth telephone interviews with 15 stakeholders from a range of fields including military health research institutes, the NHS, the Ministry of Defence, UK Armed Forces charities and charities for ex-Service Armed Forces.

Key Findings:

Potential issues in mental health service provision identified by stakeholders include:

- Issues of continuity of provision for serving personnel when they leave the military
- Variation in the types of veteran-specific support offered by the NHS throughout the UK and lack of centralised body to coordinate support
- Unequal availability of services in different locations and limited resources and budgets
- Veteran awareness of support offered by charities and right to priority treatment in NHS
- Limited availability of support for military families

Improvements to the provision of mental health services identified by stakeholders include:

- Better coordination and closer cooperation between existing mental health services
- Better support to personnel transitioning from military service to civilian life
- Early identification and prevention of mental health problems
- Provision of holistic support including employment, housing and money advice
- Specific pathways within the NHS to support military families

Issues in research data collection identified by stakeholders include:

- Possible underreporting of mental health prevalence due to stigma around mental health
- Prevalence estimates often rely on cohort studies, therefore may not be representative and may not provide evidence on some important groups, such as older veterans
- Importance of controlling for prior mental health problems and demographic characteristics when reporting on prevalence
- Potential for greater use of administrative data to improve the validity of findings and reduce the costs of carrying out research in the area of veterans' mental health

Recommendations for future research include:

- Mental health conditions arising from trauma, military experience and co-morbidity
- Harassment and sexual violence; bullying
- A more holistic exploration of the ways in which mental health affects serving, ex-Service personnel and their families, including relationships, finances, housing and employment
- Evaluation of under-researched interventions and services, such as employment, education and accommodation related interventions; family-based therapies and veteran-specific services and schemes

9.1 Introduction and chapter overview

This chapter draws on in-depth telephone interviews with 15 stakeholders from organisations including military health research institutes, the NHS, the Ministry of Defence and UK Armed Forces charities. An overview of our methodology can be found in Chapter 3 and a more detailed summary in Chapter 4 of the Technical Annex (Phillips et al. 2020b). The interviews took place alongside the review findings being finalised. Participants were presented with a summary of some of the review's key findings and were asked about mental health service provision (and what should be improved), the collection of data on military mental health, and recommendations for future research.

9.2 Mental health services

9.2.1 Views on provision

Accessibility of support

Stakeholders commented on the accessibility of support for serving personnel, with out-patient care typically provided by military Departments of Community Mental Health (DCMH) and in-patient treatment through NHS referrals. The fact that the three services (the Army, Royal Navy and Royal Air Force) within the Armed Forces have developed their own tailored mental health initiatives (such as peer support programmes and mental resilience training) was perceived to be a positive aspect of provision, since this allows services and referral pathways to be adapted to suit the preferences of different groups.

However, access to tailored support was felt to be inconsistent. It was noted that provision may vary with increases in response to military operations (e.g. Iraq and Afghanistan) and reductions in times of low deployment.

Stakeholders noted that current provision of mental health services for veterans are primarily provided by the NHS, though charities also provide important support. However, stakeholders emphasised that provision for complex cases is poor, partly due to lack of evidence about efficacy of interventions for these populations.

Consistency of support

Stakeholders discussed the types of support available when personnel leave the military and transition to civilian life and provided an overview of the services available, including veteran-specific services. Specifically, the NHS Veterans Mental Health Transition, Intervention and Liaison Service (TILS) and Complex Treatment Service (CTS) offered in England, Veterans First Point in Scotland and Veterans NHS Wales were mentioned.

There was concern from some stakeholders over continuity of provision for personnel when they leave the military, such as the fact that medical records are not automatically transferred to a GP upon leaving. Interviewees noted that the absence of a centralised body for coordinating support for ex-Service personnel results in some personnel and their mental health needs failing to be identified.

Stakeholders also noted variation and lack of consistency in provision of veteran-specific support, such as veteran-aware hospitals throughout the UK. Differences were attributed to the fact that these services are delivered through NHS trusts, which themselves vary in service provision and funding. The perceived disjointed nature of mental health service provision across the four nations of the UK was also felt to reflect a lack of coordination between different providers, such as NHS Trusts and charities. This lack of coordination was seen as particularly relevant for England, with a more joined-up approach evident in Wales, where there is a single, specialised, priority NHS service for individuals who have served in the Armed Forces.

Funding and resources

In the opinion of some of the stakeholders interviewed, the last five years has seen a significant increase in the provision of veterans' mental health, such as the NHS TILS, which serves as an entrance to a range of mental health services. Furthermore, priority NHS care is available for veterans in England, Scotland and Wales for conditions associated with their time in the Armed Forces. Stakeholders felt that these provisions are, however, limited by lack of resource and funding, along with a UK-wide shortage of psychiatric staff.

Awareness of support

Stakeholders commented that there seems to be more awareness of formal mental health support offered via the NHS compared with support offered by charities and particularly helpline services, such as the Big White Wall. It was pointed out that veterans might not be aware of the conditions of eligibility for NHS priority treatment if they do not disclose their service background when they register with a GP.

Availability of support for families

Stakeholders agreed that the mental health support provided to military families is limited, as charities often prioritise veterans as their core focus. However, there is some effective support available that aims to strengthen families' relationships and ability to cope with mental health conditions. Some examples provided included the work of charities that are UK-wide, such as Help for Heroes and Big White Wall¹²⁸, as well as specific services in Wales (Veterans NHS Wales) and Scotland (Veterans First Point).

Examples of good practice

Although there was concern around consistent access and delivery of such services, stakeholders emphasised the benefits of veteran-specific services and tailored therapy, emphasising that an understanding of military service and terminology is important for engagement and inclusivity.

¹²⁸ Big White Wall is a digital mental health and wellbeing service, offering safe, anonymous online support available 24/7.

Stakeholders also praised holistic and integrated approaches to mental health support, where treatment is designed to address wider issues that may influence health, such as employment and accommodation, as seen in Scotland's Veterans First Point.

9.2.2 Views on what should be improved

Stakeholders expressed a range of views about potential improvements in mental health service provision in the UK for serving, ex-Service personnel and families.

Support during transition

- Better coordination between military and civilian healthcare to ensure continuity of treatment.
- Increased awareness of the range of services available outside of the military and steps to encourage veterans to register for a GP when they leave.
- Creation of a transition service that identifies individuals in need of support and provides them with a mentoring service (e.g. arranging and attending medical appointments). Stakeholders suggestion for this is in line with a new Defence Transition Service to provide vulnerable service leavers with support on topics such as managing finances, including budgeting for council tax, housing and travel costs, and accessing healthcare.
- Building on the pilot evaluation of the 'veterans' universal passport'¹²⁹ (VUP) (Godier-McBard and Fossey 2018) which is intended to help reduce the complexity of non-military services and help navigate healthcare (and other) pathways during transition.
- Further support for military populations transitioning rapidly (for example, due to disciplinary reasons or medical discharge) from the Armed Forces to civilian life, who may be particularly 'high-risk'.

Types of support

- Provision of services that seek to prevent the escalation of mental health problems and better identification of those who may be 'at risk' of developing mental health problems, based on an understanding of how life experiences (such as childhood adversity) influence health.
- Collection of information on whether someone served in the military, to help ensure appropriate treatment, and an increase in veteran-specific training for healthcare professionals.
- Provision of employment, housing and financial management advice, such as the Individualised Placement and Support (IPS) model of support, which supports people with severe mental health conditions to gain and keep paid employment.
- Specific pathways within the NHS to support the families of serving and ex-Service personnel.
- Further initiatives to build family relationships and resilience.

¹²⁹ The VUP is intended to be a veteran-held multi-agency record of care, incorporating verification of military service and veteran status, current care plan and risk plan, crisis numbers, useful websites and a list of all professionals involved.

Central and coordinated delivery

- Creation of a central body to improve co-ordination and connectivity between mental health support providers (e.g. veterans' charities and NHS services) and enable third sector organisations to 'fill' treatment gaps in NHS services effectively.
- Greater cooperation and collaboration between military charities to produce a more streamlined offer of support that is easy to access.

Funding

- Increased funding for assessing the effectiveness of treatments, particularly for interventions, such as NHS England's CTS and TILS, and evaluating veteran-specific schemes, such as veteran-friendly hospitals.
- Further funding for services for families.

9.3 Current and future research

Stakeholders were asked to comment on their views on the current research and data collection methods, as well as areas for future research.

9.3.1 Views on data collection

We asked stakeholders what they thought about the way in which data on military mental health is collected.

- **Possible underreporting:** prevalence rates might be affected by underreporting due to fears around disclosure of mental health conditions e.g. serving personnel might be less likely to report certain conditions due to concern over the impact a mental health diagnosis may have on their career.
- **Use of a wider set of research methodologies:** Evidence on mental health prevalence is often based on surveys using standardised clinical measures. One stakeholder called for a broader approach to research that could explore the complex ways that mental health conditions manifest themselves and impact on people's functioning and wellbeing. Experts also recommended expanding the methodologies employed to look at the impact of experiences during service along the life course e.g. using grounded theory approaches.
- **Cohort studies:** stakeholders commented that much of the data related to prevalence comes from cohort studies, and that this means that prevalence estimates may not be representative and that less is known about particular cohorts, such as older veterans. Stakeholders also stated they felt this means we know less about the impact of some military operations on mental health, such as the Northern Ireland conflict.

- **Measuring prevalence:** stakeholders recommended that studies of prevalence should control for prior mental health problems and demographic characteristics to help us further understand the role of military experiences in influencing mental health.
- **Use of administrative data:** Stakeholders encouraged further use of administrative data to improve the validity of findings and reduce the costs of carrying out research in the area of veterans' mental health.

9.3.2 Future research

Stakeholders recommended the following as areas of research that should be prioritised and investigated further:

Research on mental health conditions

- *Conditions arising from trauma:* sexual trauma in the UK military context (currently under researched), secondary traumatisation, post-traumatic growth, and the new classification of complex PTSD (as outlined in ICD-11, WHO, 2018).
- *Conditions arising from military experience:* this includes adjustment disorders that result from adaptation to a major life event; and moral injuries, which may result from exposure to war and involve emotions, such as guilt and shame. It was also suggested that we need to understand more about how changes in the way wars are now fought (such as growth of remote operations) are affecting mental health.
- *Co-morbidity:* the relationship between mental and physical health, such as the long-term impact of mental health problems on an individuals' overall state of health.

Research on experiences during service

- *Female experiences:* harassment and sexual violence (which stakeholders understood to be encountered disproportionately by female military personnel during service). Stakeholders recommended use of a feminist epistemology.
- *Bullying:* stakeholders felt that there is a lack of a full picture of bullying in the military and highlighted a gap in research regarding the effectiveness of diversity and inclusion training on reducing stigma and bullying encountered by Black, Asian and minority ethnic serving personnel.
- Research into help-seeking behaviours, particularly related to Reservists.

Research on impacts of mental health

- *Holistic perspective:* stakeholders called for a more holistic focus on the many ways that mental health affects the lives, wellbeing and functioning of serving, ex-Service personnel and their families, arguing that a clinical perspective alone cannot capture broader effects on areas, such as relationships, finances, housing and employment.
- *Families:* participants emphasised the need for a wider exploration of how partners and families of serving and ex-Service personnel cope with and manage mental health problems.

Research related to mental health interventions

Stakeholders put forward suggestions for future research in the area of mental health interventions. They highlighted the importance of generating more robust evidence to determine what works well, specifically for certain types of interventions and recipient groups:

- Employment, education and accommodation related interventions targeted at military populations;
- Family-based therapies/interventions;
- Veteran-specific services and schemes, to determine things, such as what works well for this population and to understand reasons for low take-up and drop out;
- Evidence on relatively new services for which we know little about their effectiveness, such as NHS TILS.

10 Summary and discussion

In this chapter we present a summary of our key findings for our three key domains of interest: prevalence, experience and effectiveness. We present recommendations for future research based on the findings of the systematic review of evidence and key priority research areas identified by the interviewed stakeholders, ending on implications for policy and practice.

10.1 Summary of main findings

10.1.1 Prevalence

We included 37 studies that explore the prevalence of mental health conditions or behaviours among UK serving and ex-Service personnel and their families. In terms of populations being studied, most of this evidence examines prevalence rates for serving and ex-Service personnel, while the evidence is more limited for Reservists, female serving and ex-Service personnel, military families and Early Service Leavers (ESLs). The evidence base is limited for the prevalence of anger problems, drug misuse and addictive behaviours (such as gambling) across all populations of interest.

Common Mental Disorders (CMDs) and PTSD continue to be some of the most common mental health conditions identified in UK serving and ex-Service personnel. The rates of Post-Traumatic Stress Disorder (PTSD) have remained relatively stable since 2004 for serving personnel and the condition is less prevalent for serving personnel compared with ex-Service personnel.

Alcohol misuse is also found to be common in both serving and ex-Service personnel. However, there is also some evidence that the prevalence of alcohol misuse in serving and ex-Service personnel may be declining over time, a trend that matches a decline in alcohol consumption in the UK general population. Moreover, this pattern may also reflect the fact that the study sample on which this finding is based is growing older over time and alcohol consumption is known to fall over time.

There is evidence of lower risk of suicide for serving personnel than for members of the general population. This conclusion is in line with previous research on the topic (Mental Health Foundation, 2013). For ex-Service personnel, the evidence is less clear – with some indications of higher rates of suicide in military veterans than in the general population, but none that are statistically significant¹³⁰. For ESLs, the same is true, with some evidence of higher rates of the prevalence of suicide for this group, but none that are statistically significant.

Factors associated with mental health conditions and behaviours

There is evidence that some pre-Service factors are associated with later mental health problems. These include having experienced adversity (e.g. being physically abused by

¹³⁰ Statistical significance is the likelihood that a relationship between two or more variables is caused by something other than chance alone. A difference is statistically significant if we would expect to observe the difference in 95 out of 100 random samples from the population.

a parent or caregiver or having a parent with drug or alcohol problems), anti-social behaviour, getting into trouble with the police, aggression, and violence. The prevalence of mental health problems is typically higher for serving and ex-Service personnel who have been deployed and especially for those who have experienced combat.

Evidence also shows associations between a range of demographic factors and the risk of developing a mental health condition or behaviour (e.g. being younger, female, single or unemployed); and an association (or co-morbidity) between different mental health conditions and behaviours (e.g. having PTSD is associated with alcohol misuse). Similarly, disorders due to substance use or addictive behaviours are also linked with anger and other common mental disorders.

10.1.2 Experience

We included 38 studies that explore experiences of mental health conditions and behaviours among UK serving and ex-Service personnel and their families. Evidence on the experiences of mental health conditions typically relates to personnel transitioning to civilian life or for ex-Service personnel, rather than serving personnel. Furthermore, most studies focus on male serving or ex-Service personnel with a limited evidence base for female military personnel and families, and little evidence that explores these condition and behaviours in Reservists or ESLs.

Both deployment and combat are found to be strong predictors of mental health problems. However, research shows mental health problems often have a delayed manifestation and as such, serving personnel who experience mental health problems while on deployment (whether combat-related or not), tend to exhibit such symptoms once they have returned. Post-deployment mental health problems are found to be associated with poor sleep quality and sleep-related functional impairment.

In serving personnel, work culture and environment are also found to be important mental health determinants, with workload, and peer and leadership support, mentioned as key themes. We also find evidence that excessive alcohol consumption may be normalised during service and contribute to alcohol misuse in serving personnel and in veterans.

There is evidence that serving and ex-Service personnel do not always recognise they are suffering from a mental health problem, and consequently may use coping mechanisms to handle problem emotions, including self-management strategies, emotional detachment, and use of alcohol or drugs. For ex-Service personnel, reaching a crisis point is often mentioned as facilitating a decision to seek support and receiving a diagnosis is repeatedly mentioned as a key step in being able to recognise and understand a condition.

For those transitioning to civilian life, there are often associated difficulties in adjusting to home life. These adjustment difficulties may be worse for those who were medically discharged, and/or those who were involved in combat roles. Common adjustment difficulties include a reduction in social participation, feelings of being isolated or

misunderstood, relationship breakdown, and maladaptive coping mechanisms, such as alcohol misuse and aggression. Transition to civilian life and living with a mental health condition can also have an impact on interpersonal relationships and on the mental health of partners, families and caregivers.

Mental health stigma is a recurring theme for both serving and ex-Service personnel and is often linked to perceived norms of behaviour in the military and perceptions of potential impact (of disclosing a mental health condition) on a person's military career. In veterans, this can manifest itself in taking considerable time before seeking related help.

There is evidence that self-stigmatising attitudes such as shame or embarrassment at having a mental health problem and anticipating and experiencing negative judgments from the general public, family, friends and colleagues, act as a barrier to help-seeking for both serving and ex-Service personnel. There is also evidence that confirms the existence of prejudiced attitudes such as believing that those with mental illness should not be given any responsibility or not wanting to work with someone who has a mental health problem.

For those still serving, there is limited evidence on their experiences of disclosing a mental health condition to colleagues, families or friends, but research does show that help-seeking among serving personnel is lower for mental health problems than for issues considered to be strictly 'physical'. Research does, however, indicate a relationship between willingness to disclose and unit cohesion, with personnel more likely to disclose when they feel solidarity with their unit colleagues and leadership. In terms of preferred sources of support, serving personnel are typically more likely to seek help from friends or colleagues than through the unit chain of command, welfare staff, or medical services.

There is evidence that Service leavers are typically unaware of the availability of mental health support or ways to access it when transitioning to civilian life. There is also mixed evidence in relation to satisfaction with support among both Service personnel and veterans. Some of the issues experienced include difficulty navigating between different services and experiencing long waiting times. More positive experiences of treatment among ex-Service personnel come from feeling understood by those in the treatment pathway who are aware of their military background, and from treatment which offers opportunities to foster relationships with fellow military personnel.

There is a common perception among serving and ex-Service personnel that the military does not do enough while people are still serving to acknowledge problems, such as PTSD, educate them about mental health problems, or to promote and provide related support. Other key barriers to help-seeking include: stigma (both anticipated and experienced); the military culture of self-sufficiency, resilience and duty; a lack of awareness of possible symptoms; fear that disclosure may affect Service careers; the challenge of identifying appropriate treatment options; issues around accessing support and/or care after Service ends; and difficulties attending appointments.

There are also some key enabling factors that may encourage help-seeking and engagement with treatment, including: obtaining a clear diagnosis; autonomy over

treatment plans and whether to disclose; flexibility of treatment options; tailored support which has expertise in common Service-related mental health problems (such as CMDs) and which takes account of military culture and terminology; and anti-stigma education and campaigns.

Families of serving and ex-Service personnel face similar challenges to those experienced by military populations, including stigma, concerns around confidentiality when seeking help, and practical issues, such as difficulty getting time off work and childcare responsibilities.

10.1.3 Effectiveness

We identified 82 impact evaluations¹³¹ that estimate the effectiveness of interventions to address mental health problems in serving and ex-Service personnel and their families. As we expected to find only a small UK literature exploring intervention effectiveness, we also included impact evaluations of interventions from Australia, Canada, Denmark, France, Germany, Israel, Netherlands, New Zealand, Norway, Sweden, the UK and U.S.A. The evidence base that we identified largely focuses on ex-Service personnel from the US, with relatively little evidence from other countries.

The largest evidence base is on the effectiveness of CBT, meditation and mindfulness and wellbeing interventions, and on outcomes, such as physical health outcomes and mental health conditions. Few studies report on the effectiveness of resettlement and accommodation interventions, education or employment skills interventions, on family therapy, or on outcomes, such as delivery of the intervention (e.g. completion of treatment) and socio-economic outcomes. It may be that some of these interventions and outcomes are difficult to evaluate using the study methodologies that we include in this review, while others may be of lower research or policy importance.

We synthesised the findings of this evidence base through statistical meta-analysis. This approach combines data from multiple independent studies on the same topic in order to synthesise their results and determine overall trends. The results of the meta-analyses are presented as 'standardised mean differences' or SMDs so that studies using different scales can be compared. We also convert SMDs into percentage changes to aid interpretation of the results of the meta-analysis. These percentage changes are statistical constructs that rely on various assumptions and are presented only to convey a more intuitive measure of the size of reported effects (they should be interpreted with some caution).

Several intervention types were identified as having, on average, a positive impact on mental health. It is important to note that interventions can be more or less effective across studies and contexts and the findings presented here estimate the average effect across such studies. The term 'on average' is language used as standard in meta-analyses. Reporting in this way is important, as intervention effects vary between studies within a meta-analysis. For example, even if an intervention is ineffective on average, it may be effective in some studies or contexts.

¹³¹ Two employ a Propensity Score Matching approach (PSM), 80 are Randomised Controlled Trials (RCTs).

Meta-analysis of 26 studies indicates Cognitive Behavioural Therapy (CBT) is effective at reducing difficulties with sleep (SMD 1.13 or an approximate reduction of 24.6%) as well as symptoms of stress and associated disorders including PTSD (SMD 0.80 or a reduction of 18.5%). There is also evidence that CBT can improve outcomes such as mood disorders, anxiety and fear, and other mental health outcomes, though these findings are not statistically significant.¹³²

Evidence on meditation and mindfulness interventions (14 studies), such as yoga and breathing techniques, indicates that they are effective at addressing symptoms of stress, including PTSD (SMD 0.74, or a reduction of 17.4%), anxiety and fear (SMD 0.73, or a reduction of 17.2%), physical health and wellbeing (SMD 0.58, or an improvement of 13.8%) and mood disorders (0.42, or a reduction of 10.3%). There is also some evidence that meditation and mindfulness interventions may improve sleep quality and other mental health outcomes, though these effects are not statistically significant.

There is evidence that medication (five studies) may be effective for some outcomes, such as stress, and other associated disorders including PTSD, mood disorders and substance use or addiction (not statistically significant). However, there is also evidence which indicates that on average medication is ineffective at reducing sleep disturbance for Service and ex-Service personnel.

We find evidence that substance misuse and gambling interventions (seven studies) can reduce substance use or addiction (SMD 0.14, by 3.6%). In contrast to this, advice and support interventions (five studies) were not found to improve the following outcomes: physical health and wellbeing; stress and associated disorders including PTSD, mood disorders, suicide, self-harm, substance use or addiction; and other mental health-related outcomes.

We also explored the effectiveness of other interventions (such as wellbeing interventions and family therapy). Whilst the evidence base for these interventions was small, these analyses have broadly positive findings. For example, wellbeing interventions such as exercise or arts (seven studies) appear to improve physical health and wellbeing (not statistically significant). These interventions may also improve mood disorders (not statistically significant), but there is evidence that indicates they are ineffective for stress and associated disorders and for other mental health outcomes. Family therapy (two studies) may improve self-esteem and reduce loneliness, but there is no evidence to indicate that it improves mood disorders. Conversely, other therapeutic interventions (five studies), such as attention bias modification treatment and virtual reality exposure therapy, may have a negative impact on some mental health outcomes, including stress or mood disorders.

At the time of our systematic search, we did not find any evidence on the effectiveness of Eye Movement Desensitisation and Reprocessing (EMDR) or psychoanalysis, though we did identify some ongoing studies during the period of this study on the

¹³² Statistical significance is the likelihood that a relationship between two or more variables is caused by something other than chance alone. A difference is statistically significant if we would expect to observe the difference in 95 out of 100 random samples from the population.

treatment interventions, EMDR and 3MDR, that may soon add to the evidence base (Bisson et al, 2018, Bremault-Phillips, 2019).

Two studies investigate the effect of resettlement (such as third location decompression) on stress and associated disorders including PTSD. On average these studies find small but statistically significant reductions in symptoms of stress (SMD 0.08, 1.9%).

The evidence base was too limited to undertake a meta-analysis on the effect of interventions on accommodation, employment or education.

Barriers and enablers to the effectiveness of interventions for UK serving and ex-Service personnel

Evidence regarding UK populations highlights several possible barriers to intervention effectiveness. Interventions can suffer from low levels of take-up, which can arise due to a lack of interest, or fear and apprehension around participating. Attitudes towards mental health can take time to change, which may mean that short-term interventions designed to educate personnel and influence attitudes may have a limited influence. Intervention effectiveness may also be limited if target populations include many individuals who do not have mental health problems, or conversely, if interventions designed for all personnel include those with particularly complex or severe symptoms. Interventions that are adapted from U.S. or other nations' militaries' programmes may not be as effective in a UK context; this may be for several: they may not translate well between different military experiences and cultures or may have to be fundamentally changed or scaled down during the adaptation process to the point where they lose the level of effective shown in other settings.

10.1.4 Limitations of the review process

This systematic review updates the MHF review published in 2013. As a result, the review does not incorporate evidence published before this date.¹³³ We used machine learning¹³⁴ to prioritise our search results for screening and stopped screening through results when we ceased to find relevant studies. Inclusion decisions at title and abstract were undertaken by a single reviewer for each study. We restricted inclusion by study methodology to those studies we deemed most relevant to our research questions. These inclusion rules and processes mean that, though the review aims to comprehensively review the literature, it is possible that some relevant studies may have been missed.

For evidence on prevalence of mental health problems and experiences of living with a mental health problem, we restricted studies to those that focus on UK populations of interest. However, for evidence of the effectiveness of interventions, we included evidence from a wider set of contexts. This means that some caution should be taken

¹³³ We also included any impact evaluation included in the MHF (2013) review that met our criteria for inclusion in the effectiveness domain.

¹³⁴ We used dedicated systematic review software (Abstrackr) to help us streamline the screening process. The software uses algorithms to learn from inclusion and exclusion decisions and prioritise the most relevant studies for screening.

when interpreting the applicability of findings based on an international evidence base to the UK context.

10.2 Recommendations for research and commissioning

The review identified the following key evidence gaps that should be the focus of future research and research commissioning:

- Greater use of existing administrative data capturing mental health problems in veterans could help provide more valid estimates of prevalence and reduce the cost of carrying out research. However, serving and ex-Service personnel would need to be better identified in health records. This would need to be considered against the wishes of those who may not wish to be identified based on their Service.
- Greater focus of research on the impact of mental health problems on serving and ex-Service personnel's wellbeing and functioning (e.g. relationships, housing, employment, finances).
- Accurately recording data on mental health problems by controlling for social and demographic characteristics (e.g. when reporting on suicide rates).
- Building more evidence on the experience of specific sub-groups, specifically: ex-Service personnel, female Service personnel, military families, Reservists, and Early Service Leavers.
- Building an understanding of the relationship between pre-Service experiences and mental health problems in- and post-Service.
- Increasing the currently limited evidence on effective interventions to target specific mental health-related problems in the UK, including innovative interventions such as behavioural activation therapy and EMDR, and interventions addressing mental health that are designed to help with resettlement, accommodation, education and employment. Few evaluations explore the impact of interventions on 'early outcomes', such as rates of help-seeking or completion of treatment or the effectiveness of mental health interventions on other later outcomes, such as education or employment.

Stakeholders also emphasised the value of building the evidence base on sexual victimisation and harassment, bullying and discrimination, conditions arising from military experience (e.g. adjustment disorders and moral injury), and on co-morbidities between mental and physical health conditions.

10.3 Implications and recommendations for policy and practice

The findings of the systematic review and stakeholder interviews suggest the following recommendations for policy and programming:

- The need for investment in the early identification of individuals ‘at risk’ and early intervention to help prevent escalation of mental health problems. Assessment models capturing the relationship between pre-Service experiences and mental health problems in military personnel could help in the identification process.
- The need for enhanced services designed to prevent the escalation of mental health problems for ex-Service personnel.
- Increased information and education on mental health to support help-seeking serving and ex-Service personnel and their families, as well as better signposting to services.
- Improved awareness amongst healthcare professionals of both the needs of serving and ex-Service personnel, and their entitlement to support. There is evidence that veterans are not always informed of their entitlement to priority healthcare access for conditions associated with their time within the Armed Forces under the Armed Forces Covenant.¹³⁵ Stakeholders recommended that Armed Forces service should be recorded in national healthcare records, and that, at point of accessing support, help-seekers should be asked whether they have served to ensure that appropriate veteran-specific services can be provided.
- Addressing stigma. Anti-stigma and mental health education campaigns are perceived positively by military personnel. Potential solutions offered by stakeholders included identification of ‘at risk’ individuals and offers of coaching to address concerns relating to career impacts.
- Formal systems to manage transition to civilian life. There can be a lack of connectivity between in-Service and civilian services that undermines continuity of care and means some individuals can be left without support. Stakeholders’ recommendations included systematic provision of information on the mental health services available to ex-Service personnel, a formal transition service to ensure that treatments are continued on leaving the Service, and mentors to assist with arranging and attending medical appointments. Stakeholders also noted that military populations transitioning rapidly (for example, due to medical discharge) to civilian life may be ‘high-risk’ and that support would be particularly beneficial for such groups.
- The importance of co-ordinated service provision. Given the complex system of treatment services available, stakeholders suggested that a central, co-ordinating body should be created to improve connectivity between mental health support providers. It was suggested that co-ordination could be further strengthened by introducing a single point of contact or reference to help veterans navigate services in an integrated way.

10.4 Conclusion

This report presents findings based on a systematic review of 190 independent research studies and interviews with 15 stakeholders including military health research

¹³⁵ Priority is not available for all veterans from the NHS – only those in England, Scotland and Wales for service attributable conditions subject to clinical need. There is no priority for the families of veterans.

institutes, the NHS, the Ministry of Defence, UK Armed Forces charities and charities for ex-Service Armed Forces. The vast majority of the studies included in this review were published from 2013 onwards, highlighting the growth in recent research in this area.

Despite the growing evidence base, there are some enduring evidence gaps. In particular, there is relatively little evidence relating to female Service and ex-Service personnel, military families, Reservists, and Early Service Leavers. Future research could focus on the prevalence of mental health problems in these groups, explore their mental health experiences, and ensure that evaluations examine whether services and programmes effectively address their needs. Future research could also explore the potential of administrative data to provide estimates of prevalence.

The evidence offers a complex picture of the mental health of serving and ex-Service personnel and their families. Although the majority of military personnel transition successfully to civilian life, for a vulnerable few, mental health problems may be experienced during and after Service which can impact not only the individual, but also those around them, to varying degrees of severity. This report also describes the various barriers and facilitators to accessing appropriate help, and highlights where research indicates unmet need – all of which we hope will serve to inform future research, policy, service provision need, and where relevant and appropriate, informative and targeted educational campaigns or training.

11 References

All studies that were included in this review were subsequently included in the VFR hub¹³⁶ – an online repository of UK and international research on military veterans and their families (VFR, n.d.).

References are subdivided into several sections, with separate lists for studies providing evidence on each of our domains of interest (Prevalence; Experience; Effectiveness) and the Evidence Map, as well as a list of references cited in the body of the report but not meeting the review's inclusion criteria.

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Thandi, G., Sundin, J., Ng-Knight, T., Jones, M., Hull, L., Jones, N., Greenberg, N., Rona, R.J., Wessely, S. and Fear, N.T. (2015b). Alcohol misuse in the United Kingdom Armed Forces: A longitudinal study. *Drug and alcohol dependence*, 156, pp. 78-83.

Turgoose, D. and Murphy, D. (2018a). A Review of Traumatic Brain Injury in Military Veterans: Current Issues and Understanding, *Open Access Journal of Neurology & Neurosurgery*, 7 (3).

Turgoose, D. and Murphy, D. (2018b). Anger and aggression in UK treatment-seeking veterans with PTSD. *Healthcare*, 6 (3), p. 86.

Whybrow, D., Jones, N., Evans, C., Minshall, D., Smith, D. and Greenberg, N. (2015). The mental health of deployed UK maritime forces. *Occup Environ Med*, 73 (2), pp. 75-82.

Williamson, V., Diehle, J., Dunn, R., Jones, N. and Greenberg, N. (2018). The impact of military service on health and well-being. *Occupational Health*, 69 (1), pp. 69-70.

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11.3 Studies providing evidence on experience

The following list includes any study that met inclusion criteria for the Experience domain of the review:

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Bull, S., Thandi, G., Keeling, M., Chesnokov, M., Greenberg, N., Jones, N., Rona, R. and Hatch, S.L. (2015). Medical and Welfare Officers beliefs about post-deployment screening for mental health disorders in the UK Armed Forces: a qualitative study. *BMC public health*, 15 (1), p. 338.

Caddick, N., Phoenix, C. and Smith, B. (2015). Collective stories and well-being: Using a dialogical narrative approach to understand peer relationships among combat veterans experiencing post-traumatic stress disorder. *Journal of Health Psychology*, 20 (3), pp. 286-299.

Dighton, G., Roberts, E., Hoon, A. and Dymond, S. (2018). Gambling problems and the impact of family in UK armed forces veterans. *Journal of Behavioral Addictions*, 7 (2), pp. 355-365.

Doncaster, E., Hiskey, S., McPherson, S. and Andrews, L. (2015). I'm Still Fighting for the Two of Us: How Partners of UK Veterans Construct Their Experience of Living with Combat-Related Trauma. *Journal of marital and family therapy*, 45 (3), pp. 464-479.

Farrand, P., Jeffs, A., Bloomfield, T., Greenberg, N., Watkins, E. and Mullan, E. (2018). Mental health service acceptability for the armed forces veteran community. *Occupational Medicine*, 68 (6), pp. 391-398.

Fertout, M., Jones, N., Keeling, M. and Greenberg, N. (2015) Mental health stigmatisation in deployed UK Armed Forces: A principal components analysis. *Journal of the Royal Army Medical Corps*, 161 (Supp 1), pp. 69–76.

Hallett, G. (2012). *An exploration of how veterans diagnosed with combat-related post-traumatic stress disorder experience therapy*. Doctoral thesis, University of Roehampton.

Hatch, S.L., Harvey, S.B., Dandeker, C., Burdett, H., Greenberg, N., Fear, N.T. and Wessely, S. (2013). Life in and after the Armed Forces: social networks and mental health in the UK military. *Sociology of health & illness*, 35 (7), pp. 1045-1064.

Hatton, P. (2016). *Exploring members of the UK Armed Forces experience of recovery after treatment for a diagnosis of post-traumatic stress disorder*. Doctoral thesis, University of East London.

Hines, L.A., Goodwin, L., Jones, M., Hull, L., Wessely, S., Fear, N.T. and Rona, R.J. (2014). Factors affecting help seeking for mental health problems after deployment to Iraq and Afghanistan. *Psychiatric services*, 65 (1), pp. 98-105.

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Jones, N. and Coetzee, R. (2018). What drives UK military personnel to seek mental healthcare, work strain or something else? *Journal of the Royal Army Medical Corps*. Available at: <https://www.kcl.ac.uk/kcmhr/publications/assetfiles/2018/Jones2018.pdf>

Jones, N., Champion, B., Keeling, M. and Greenberg, N. (2018). Cohesion, leadership, mental health stigmatisation and perceived barriers to care in UK military personnel. *Journal of Mental Health*, 27 (1), pp. 10-18.

Jones, N., Keeling, M., Thandi, G. and Greenberg, N. (2015). Stigmatisation, perceived barriers to care, help seeking and the mental health of British Military personnel. *Social psychiatry and psychiatric epidemiology*, 50 (12), pp. 1873-1883.

Jones, N., Twardzicki, M., Fertout, M., Jackson, T. and Greenberg, N. (2013). Mental health, stigmatising beliefs, barriers to care and help-seeking in a non-deployed sample of UK army personnel. *Journal of Psychology & Psychotherapy*, 3 (5), p. 1.

Kantor, V., Knepel, M. and Lueger-Schuster, B. (2017). Perceived barriers and facilitators of mental health service utilization in adult trauma survivors: A systematic review. *Clinical Psychology Review*, 52, pp. 52-68.

Keeling, M., Bull, S., Thandi, G., Brooks, S. and Greenberg, N. (2017). UK Army Medical and Unit Welfare Officers' Perceptions of Mental Health Stigma and Its Impact on Army Personnel's Mental Health Help Seeking. *Military Behavioral Health*, 5 (3), pp. 245-253.

Kiernan, M., Hill, M., McGill, G., Osborne, A., Greaves, J. and Wilson, G. (2017) *Improving Access Report 2017: Understanding Why Veterans Are Reluctant To Access Help for Alcohol Problems*. Project Report. Northumbria University, Newcastle-upon-Tyne. Available at: <https://northumbria-cdn.azureedge.net/-/media/corporate-website/new-site-core-gallery/services/business-and-enterprise-services/the-northern-hub-for-military-veterans-and-families-research/improving-access-report.pdf?la=en&modified=20171218151813&hash=7DC941C5E502CCF4299F17D6DB0B842E57FD62D6> (Accessed 28.11.19)

Kiernan, M.D., Osbourne A., McGill G., Greaves P.J., Wilson G., Hill M. (2018). Are veterans different? Understanding veterans' help-seeking behaviour for alcohol problems. *Health & Social Care in the Community*, 26 (5), pp. 725–733.

Lovatt, R. (2017). *Veteran adjustment to civilian life*. Doctoral thesis, Staffordshire and Keele Universities.

De Rond, M. and Lok, J. (2016). Some things can never be unseen: the role of context in psychological injury at war. *Academy of Management Journal*, 59 (6), pp. 1965-1993.

Rowe, M., Murphy, D., Wessely S. and Fear N.T. (2013). Exploring the Impact of Deployment to Iraq on Relationships. *Military Behavioral Health*, 1 (1), pp. 13-21.

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Murphy, D., Hunt, E., Luzon, O. and Greenberg, N. (2014). Exploring positive pathways to care for members of the UK Armed Forces receiving treatment for PTSD: a qualitative study. *European Journal of Psychotraumatology*, 5 (1), p. 21759.

Murphy, D., Palmer, E., Ashwick, R. (2017a) Multiple deprivation in help-seeking UK veterans' Multiple deprivation. Available at:

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Murphy, D., Palmer, E., Hill, K., Ashwick, R. and Busuttil, W. (2017b). Living alongside military PTSD: a qualitative study of female partners' experiences with UK Veterans. *Journal of Military, Veteran and Family Health*, 3 (1), pp. 52-61.

Murphy, D., Palmer, E. and Busuttil, W. (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*, 5 (8), p. 68.

NHS (2016). *Developing mental health services for veterans in England Engagement Report*.

Available at: <https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/09/veterans-mh-services-engagement-rep.pdf> (Accessed 28.11.19)

Palmer, E., Murphy, D. and Spencer-Harper, L. (2016). Experience of post-traumatic growth in UK veterans with PTSD: a qualitative study. *Journal of the Royal Army Medical Corps*, 163 (3), pp. 171-176.

Rafferty, L., Stevelink, S., Greenberg, N. and Wessely, S. (2017). *Stigma and barriers to care in service leavers with mental health problems*. London: Forces in Mind Trust.

Ramchand, R., Rudavsky, R., Grant, S., Tanielian, T. and Jaycox, L. (2015). Prevalence of, risk factors for, and consequences of posttraumatic stress disorder and other mental health problems in military populations deployed to Iraq and Afghanistan. *Current psychiatry reports*, 17 (5), p. 37.

Rowe, S.L., Keeling, M., Wessely, S. and Fear, N.T. (2014). Perceptions of the impact a military career has on children. *Occupational medicine*, 64 (7), pp. 490-496.

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Woodhead, C. (2013). *The mental health and well-being of women in the UK Armed Forces*. Doctoral thesis, King's College.

11.4 Studies providing evidence on effectiveness

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Badura-Brack, A.S., Naim, R., Ryan, T.J., Levy, O., Abend, R., Khanna, M.M., McDermott, T.J., Pine, D.S., Bar-Haim, Y. (2015). Effect of Attention Training on Attention Bias Variability and PTSD Symptoms: Randomized Controlled Trials in Israeli and U.S. Combat Veterans. *American Journal of Psychiatry*, 172 (12), pp.1233-1241.

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Bourque, J., VanTil, L., Gibbons, C., LeBlanc, S.R., Landry, L.A., LeBlanc, J., Sareen, J., Darte, K., Kopp, B. and More, F. (2015). Impact of a Housing First intervention on homeless Veterans with mental illness: a Canadian multisite randomized controlled trial. *Journal of Military, Veteran and Family Health*, 1(2), pp. 52-60.

Bremner, DJ, Sanskriti, M., Campanella, C., Shah, M., Kasher, N., Even, S., Fani, N., Shash AJ., Reiff, C., Davis, L., Vaccarino, V., Carmody, J. (2017). A Pilot Study of the Effects of Mindfulness-Based Stress Reduction on Post-traumatic Stress Disorder Symptoms and Brain Response to Traumatic Reminders of Combat in Operation Enduring Freedom/ Operation Iraqi Freedom Combat Veterans with Post-traumatic Stress Disorder, *Frontiers in Psychiatry*, 8(157)

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Brown, A.J. (2013). *Re-Experiencing Symptom Self-Monitoring as an Early Step in the Treatment of Posttraumatic Stress Disorder*. Doctoral thesis, Emory University.

Buffington, B.C., Melnyk, B.M., Morales, S., Lords, A., Zupan, M.R. (2016). Effects of an energy balance educational intervention and the COPE cognitive behavioral therapy intervention for Division I U.S. Air Force Academy female athletes. *Journal of the American Association of Nurse Practitioners*, 28 (4), pp. 181-187.

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Veteran Post Traumatic Stress Disorder: Randomized Controlled Trial. *Journal of Trauma Stress Disorders & Treat*, 2 (3).

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Chinman, M., Oberman, R.S., Hanusa, B.H., Cohen, A.N., Salyers, M.P., Twamley, E.W. and Young, A.S. (2013). A Cluster Randomized Trial of Adding Peer Specialists to Intensive Case Management Teams in the Veterans Health Administration. *The Journal of Behavioral Health Services & Research*, 42 (1), pp. 109-121.

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11.5 Studies included in the evidence map

The following list includes any study that met inclusion criteria for the Evidence Map.

Completed impact evaluations

All studies listed in section 11.4, 'Studies Providing Evidence on Effectiveness', are included in the Evidence Map.

Ongoing impact evaluations

The ongoing impact evaluations that met inclusion criteria for the Evidence Map include:

Bisson, J., and Barawi, K. (2018). *Military motion-assisted memory desensitization and reconsolidation for treatment resistant post-traumatic stress disorder in military veterans*. Forces in Mind Trust. Available at:

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Brett, L., Carney, J. (2017). *Psychosocial Rehabilitation After Moral Injury and Loss With Adaptive Disclosure*, Veteran Affairs Office of Research and Development. Available at: <https://clinicaltrials.gov/ct2/show/NCT03056157> (Accessed 09.04.19)

Bunnell, B., Davidson, T., Hamblen, J., Cook, D., Grubaugh, A.L., Lozano, B.E., Tuerk, P.W., Ruggiero, K.J. (2017). Protocol for the evaluation of a digital storytelling approach to address stigma and improve readiness to seek services among veterans. *Pilot and Feasibility Studies*, 3(7).

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O'Shea, L. (2018). *A novel internet-based self-help intervention for anger in armed forces veterans and civilians*. Funded by: University of Exeter. Available at:

<http://www.isrctn.com/ISRCTN57620677>. (Accessed 09.04.19)

O'Shea, L., Watkins, E., Farrand, P. (2017). Psychological interventions for the treatment of depression, anxiety, alcohol misuse or anger in armed forces veterans and their families: systematic review and meta-analysis protocol. *Systematic Review*, 6 (122).

Tegeler, C. (2017). *HIRREM for Mitigation of PTSD Symptoms in Military Personnel*. Available at: https://clinicaltrials.gov/ProvidedDocs/90/NCT03230890/Prot_SAP_000.pdf. (Accessed 09.04.19)

Walker, D. (2018). *Improving Voluntary Engagement for PTSD Treatment Among Service Members (RCT)*. University of Washington. Available at:

<https://apps.dtic.mil/dtic/tr/fulltext/u2/1070344.pdf>. (Accessed 09.04.19)

Evidence reviews and meta-analyses

The evidence reviews and meta-analyses that met inclusion criteria for the Evidence Map include:

Bauer, A., Newbury-Birch, D., Robalino, S., Ferguson, J. and Wigham, S. (2018). Is prevention better than cure? A systematic review of the effectiveness of well-being interventions for military personnel adjusting to civilian life. *PloS one*, 13(5).

Brendel, K.E., Maynard, B.E., Albright, D.L., and Bellomo, M. (2014). Effects of School-Based Interventions With U.S. Military-Connected Children: A Systematic Review. *Research on Social Work Practice*, 24 (6), pp. 649-658.

Caddick, N. and Smith, B. (2014). The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of Sport and Exercise*, 15(1), pp 9-18.

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Elwy, R., Johnston J.M., Bormann J.E., Hull A., and Taylor S.L. (2014). A Systematic Scoping Review of Complementary and Alternative Medicine Mind and Body Practices to Improve the Health of Veterans and Military Personnel. *Medical Care*, 52 (12, Suppl 5), pp. 70-82.

Evans, T.S., Berkman, N., Brown, C., Gaynes, B. and Weber, R.P. (2016). Disparities within serious mental illness. *Technical Brief*, 25.

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Phelps, A.J., Varker, T., Metcalf, O. and Dell, L. (2017). What are effective psychological interventions for veterans with sleep disturbances? A rapid evidence assessment. *Military medicine*, 182 (1-2), pp. e1541-e1550.

Renton, T., Tang, H., Ennis, N., Cusimano, M.D., Bhalerao, S., Schweizer, T.A. and Topolovec-Vranic, J. (2014). Web-based intervention programs for depression: a scoping review and evaluation. *Journal of Medical Internet Research*, 16 (9), p. e209.

Sebastian, B. and Nelms, J. (2017). The effectiveness of Emotional Freedom Techniques in the treatment of posttraumatic stress disorder: A meta-analysis. *Explore: The Journal of Science and Healing*, 13 (1), pp. 16-25.

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