

Northumbria Research Link

Citation: Gettings, Richard, Kirtley, Jenna, Wilson-Menzfeld, Gemma, Oxburgh, Gavin, Farrell, Derek and Kiernan, Matt (2022) Exploring the Role of Social Connection in Interventions With Military Veterans Diagnosed With Post-traumatic Stress Disorder: Systematic Narrative Review. *Frontiers in Psychology*, 13. p. 873885. ISSN 1664-1078

Published by: Frontiers Research Foundation

URL: <https://doi.org/10.3389/fpsyg.2022.873885>
<<https://doi.org/10.3389/fpsyg.2022.873885>>

This version was downloaded from Northumbria Research Link:
<http://nrl.northumbria.ac.uk/id/eprint/49389/>

Northumbria University has developed Northumbria Research Link (NRL) to enable users to access the University's research output. Copyright © and moral rights for items on NRL are retained by the individual author(s) and/or other copyright owners. Single copies of full items can be reproduced, displayed or performed, and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided the authors, title and full bibliographic details are given, as well as a hyperlink and/or URL to the original metadata page. The content must not be changed in any way. Full items must not be sold commercially in any format or medium without formal permission of the copyright holder. The full policy is available online: <http://nrl.northumbria.ac.uk/policies.html>

This document may differ from the final, published version of the research and has been made available online in accordance with publisher policies. To read and/or cite from the published version of the research, please visit the publisher's website (a subscription may be required.)

Exploring the role of social connection in interventions with military veterans diagnosed with Post Traumatic Stress Disorder (PTSD): Systematic narrative review.

Richard D. Gettings^{1*}, Jenna Kirtley¹, Gemma Wilson-Menzfeld¹, Gavin E. Oxburgh¹, Derek Farrell², Matthew D. Kiernan¹

¹Department of Psychology, Northumbria University, United Kingdom, ²University of Worcester, United Kingdom

Submitted to Journal:
Frontiers in Psychology

Specialty Section:
Health Psychology

Article type:
Systematic Review Article

Manuscript ID:
873885

Received on:
11 Feb 2022

Revised on:
01 Jun 2022

Journal website link:
www.frontiersin.org

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

Author contribution statement

RG contributed to the data analysis, was the primary author of the manuscript and had overall responsibility. MK contributed to the data analysis and co-authored the manuscript. JK contributed to the data analysis and co-authored the manuscript. GWM contributed to the data analysis and co-authored the manuscript. DF and GO co-authored the manuscript. All authors contributed to the article and approved the submitted version.

Keywords

Loneliness, Mental Health, military, Post-traumatic stress disorder, psychosocial, Social Isolation, veteran

Abstract

Word count: 286

Abstract

Background: It has been identified that military veterans have distinct experiences of loneliness and social isolation and, when comparing this community to other client groups with a PTSD diagnosis, veterans respond less favourably to treatment. However, the link between PTSD and loneliness for veterans remains insufficiently researched and it is unclear if there are effective interventions tackling this distinct experience of loneliness.

Aims: This systematic narrative review aimed to synthesize existing evidence incorporating elements of social connection, social isolation, and loneliness within interventions for military veterans with a diagnosis of PTSD, consequently aiming to examine the impact of such interventions upon this community.

Methods: Six databases were searched, utilising relevant search criteria, with no date restrictions. Articles were included if they involved intervention or treatment for military veterans with PTSD and considered elements of social connection, social isolation, and/or loneliness. The initial search returned 202 papers. After exclusions, removal of duplications, and a reference/citation search, 28 papers remained and were included in this review.

Results: From the 28 studies, 11 directly addressed social isolation and two studies directly addressed loneliness. Six themes were generated: (i) rethinking the diagnosis of PTSD, (ii) holistic interventions, (iii) peer support, (iv) social reintegration, (v) empowerment through purpose and community, and (vi) building trust.

Conclusions: A direct focus upon social reintegration and engagement, psychosocial functioning, building trust, peer support, group cohesiveness and empowerment through a sense of purpose and learning new skills may mitigate experiential loneliness and social isolation for veterans with PTSD. Future research and practice should further explore the needs of the PTSD-diagnosed veteran community, seek to explore and identify potential common routes towards the development of PTSD within this community and consider bespoke interventions for tackling loneliness.

Contribution to the field

The field of military veteran Post-Traumatic Stress Disorder (PTSD) identification, treatment and mitigation remains significantly dominated by traditional psychotherapy-related practices. Furthermore, research which seeks to change the narrative to include more holistic, peer-centric, interventions and practices remains very much centered within the USA. Therefore, this paper provided an original contribution to the evidence base through the systematic synthesis of research involving interventions tackling the social isolation and loneliness of military veterans with a diagnosis of PTSD. From the 28 papers included in this review it was evident that holistic interventions, which can mitigate experiential loneliness and social isolation for veterans with PTSD, include the following characteristics: social reintegration and engagement, psychosocial functioning, building trust, peer support, group cohesiveness and empowerment through a sense of purpose and learning new skills. By both quantifying the currently relevant research, and highlighting where best practice exists, it becomes possible to focus where future UK-centric research, and subsequently designed interventions, need to be concentrated.

Funding statement

The United Kingdom Armed Forces Covenant Fund Trust (AFCFT) has funded a two year research study, under their Tackling Loneliness Programme.

Submission fees for this manuscript are to be paid by Northumbria University Student, Library and Academic Services.

Data availability statement

Generated Statement: The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

In review

1 **Exploring the role of social connection in interventions with**
2 **military veterans diagnosed with Post Traumatic Stress Disorder**
3 **(PTSD): Systematic narrative review.**

4
5 **Richard D. Gettings*¹, Jenna Kirtley², Gemma Wilson-Menzfeld³, Gavin E. Oxburgh⁴,**
6 **Derek Farrell⁵ and Matthew D. Kiernan⁶**

7 ^{1,2,3,4 & 6} Northern Hub for Veterans and Military Families Research, Northumbria University,
8 Newcastle, United Kingdom.

9 ⁵ Department of Violence, Trauma and Criminology, Worcester University, Worcester,
10 United Kingdom.

11 *** Correspondence:**

12 Richard D. Gettings

13 richard.gettings@northumbria.ac.uk

14
15 **Keywords: loneliness¹, mental health², military³, veteran⁴, post-traumatic stress**
16 **disorders⁵, psychosocial⁶, social isolation⁷.**

17
18 **Abstract**

19 Background: It has been identified that military veterans have distinct experiences of loneliness
20 and social isolation and, when comparing this community to other client groups with a PTSD
21 diagnosis, veterans respond less favourably to treatment. However, the link between PTSD and
22 loneliness for veterans remains insufficiently researched and it is unclear if there are effective
23 interventions tackling this distinct experience of loneliness.

24
25 Aims: This systematic narrative review aimed to synthesize existing evidence incorporating
26 elements of social connection, social isolation, and loneliness within interventions for military
27 veterans with a diagnosis of PTSD, consequently aiming to examine the impact of such
28 interventions upon this community.

29
30 Methods: Six databases were searched, utilising relevant search criteria, with no date
31 restrictions. Articles were included if they involved intervention or treatment for military
32 veterans with PTSD and considered elements of social connection, social isolation, and/or
33 loneliness. The initial search returned 202 papers. After exclusions, removal of duplications,
34 and a reference/citation search, 28 papers remained and were included in this review.

35
36 Results: From the 28 studies, 11 directly addressed social isolation and two studies directly
37 addressed loneliness. Six themes were generated: (i) rethinking the diagnosis of PTSD, (ii)
38 holistic interventions, (iii) peer support, (iv) social reintegration, (v) empowerment through
39 purpose and community, and (vi) building trust.

40
41 Conclusions: A direct focus upon social reintegration and engagement, psychosocial
42 functioning, building trust, peer support, group cohesiveness and empowerment through a
43 sense of purpose and learning new skills may mitigate experiential loneliness and social

44 isolation for veterans with PTSD. Future research and practice should further explore the
45 needs of the PTSD-diagnosed veteran community, seek to explore and identify potential
46 common routes towards the development of PTSD within this community and consider
47 bespoke interventions for tackling loneliness.

48 **Introduction**

49 The effects of trauma upon the function of the human brain have been known for millennia,
50 reported diversely across ancient Greek, Roman and Hebrew literature, to name a few.
51 Wherever global armies battled the effects of trauma upon the combatants was later reported
52 and recorded for posterity. Under the guise of many different monikers, Shell Shock, Battle
53 Fatigue, Soldier's Heart to name three, the consequences of combat upon cognitive function
54 have been laid bare. These studies became more formalised in the 19th Century, culminating in
55 Post-Traumatic Stress Disorder (PTSD) becoming a diagnosable condition in 1980, when the
56 American Psychological Association included it in the Diagnostic and Statistical Manual of
57 mental disorders (DSM), 3rd Edition. 8% of the general population will be affected by PTSD,
58 at some stage in their life, figures which do not take into account the inevitable consequences
59 of Covid upon many emergency service and public-facing occupations, a rate which is doubled
60 for active duty service members and veterans (Judkins et al, 2020). In comparison, 17% of UK
61 troops who were deployed in combat roles, during the Iraq and Afghanistan conflicts, later
62 developed symptoms of PTSD; compared with 6% for those who were not deployed (Stevellink
63 et al., 2018). This juxtaposition of PTSD prevalence rates is perhaps indicative of both the
64 disparate nature of trauma faced by active-duty service personnel and the potentially
65 incongruous, outdated and non-sufferer centric diagnostic, support and therapeutic processes
66 instituted for the PTSD diagnosed, military and veteran, communities? (Ginzburg et al, 2010;
67 Iversen et al, 2009)

68
69 PTSD is a prevalent and debilitating disorder amongst military personnel (serving and
70 veterans) globally, having a long-term impact and creating a significant public health challenge
71 (Steenkamp et al., 2015). It has been found to be associated with transition out of the military,
72 taking hold of an individual potentially once they enter the void of psychological inactivity and
73 lack of direction that faces many whom leave with little, or no, planning and preparation. It is,
74 furthermore, associated with social exclusion and higher rates of deprivation (Karstoft et al.,
75 2015; Sayer et al., 2015; Murphy et al., 2016). There is a certain latency with the development
76 of PTSD, sometimes many years after transition (Marmar et al., 2015). Since 2001, in excess
77 of 280,000 UK Service personnel have been deployed to combat zones in Iraq and Afghanistan
78 (Carlson et al., 1998), and approximately 11-15,000 UK service personnel currently make the
79 transition into civilian life each year (Ministry of Defence, 2021). Advances in the treatment
80 and diagnosis of PTSD have led to the differentiation between PTSD and Complex PTSD (C-
81 PTSD) (Powers et al., 2017), whereby it is now recognised that early life traumatisation,
82 prolonged and multiple traumas, deep-seated and unresolved symptoms may prove to be the
83 catalysts for the complex derivative of the disorder; significantly diagnosed within the military
84 and veteran communities due, potentially, to the recruitment dynamic of those who join the
85 military and the idiosyncratic nature of training, experience and culture (Wilson, Hill and
86 Kiernan, 2018). Parallel advances in the identification, and detailed examination, of loneliness
87 and its psychological correlates, such as feelings of shame and guilt, difficulty controlling
88 emotions, dissociation, feeling cut off from family and friends and risky behaviour (Walton et
89 al., 1991) have led to an increasing awareness of the true experience of loneliness and social
90 isolation. These symptoms are not captured in the existing PTSD diagnostic criteria in either
91 the International Classification of Diseases (ICD), 11th edition or the DSM 5 (World Health
92 Organisation, 2020; American Psychiatric Association, 2013) (see Table 1). Amongst this

93 panoply of additionally recognised symptoms and consequences are experiences that can be
 94 associated with loneliness and social isolation.

95

96 **Table 1.** Symptom capture and limitations on existing PTSD criterion

97

Symptoms captured by existing PTSD criterion (ICD-11/DSM 5)	Symptoms not captured by existing PTSD criterion (ICD-11/DSM 5)
<ul style="list-style-type: none"> ○ Fear ○ Re-experiencing ○ Avoidance behaviour ○ Hypervigilance ○ Horror ○ Helplessness ○ Challenge to physical integrity ○ Psychogenic amnesia ○ Reduced affect ○ Dissociation ○ Anger ○ Impact on functioning ○ Self-blame ○ Self-destructiveness ○ Alterations in world view 	<ul style="list-style-type: none"> ○ Depression ○ Guilt ○ Shame ○ Psychosexual difficulties ○ Betrayal ○ Stigmatisation ○ Self-medicating activity ○ Increased vulnerability to re-traumatisation

98 Loneliness is a subjective social and emotional experience, often traditionally characterized as
 99 the difference between the social relationships individuals actually have and those that they
 100 aspire to having (Walton et al., 1991). Conversely, social isolation is an objective experience
 101 which considers the integration of the individual into their social environment, the frequency
 102 of their social interactions and their integration within social networks (Cacioppo et al., 2006).
 103 Research shows that loneliness and social isolation are linked to poor physical health and
 104 wellbeing, including high blood pressure, cognitive decline, depression, and mortality
 105 (Cacioppo et al., 2006; Steptoe et al., 2013; Holt-Lunstad et al., 2010) and are global issues
 106 affecting individuals of all ages.

107

108 Evidence demonstrates the unique experiences and needs of military veterans in terms of social
 109 isolation and loneliness (Wilson, Hill, & Kiernan, 2018). These unique experiences stem from
 110 both intrinsic and extrinsic factors related to military life, such as military-related trauma and
 111 PTSD. Transition, and losing touch with comrades was another factor which influenced
 112 experiences of loneliness and social isolation (Wilson, Hill, & Kiernan, 2018). Further recent
 113 research from two of the largest UK military charities, Royal British Legion and the Soldiers,
 114 Sailors, Airmen and Families Association (RBL, 2014; SSAFA, 2017) indicates that 41% of
 115 veterans surveyed (over 2000 veterans, aged 18-64, participated) had personally experienced
 116 loneliness or social isolation and 27% had experienced suicidal ideation, since transitioning
 117 from the military to civilian life.

118

119 Shepherd et.al. (2020) highlight the many challenges of transition and throw light upon cultural
 120 and structural differences between the military and civilian communities which facilitate and

121 aggravate these difficulties. A recent US military family lifestyle survey (Sonethavillay et al.,
122 2018) reported that 47% of veteran families had a difficult or very difficult transition
123 experience due to loss of connection and purpose, stress, depression and suicidal thoughts. It
124 is argued that these were exacerbated by frequent relocations and disruption of the established
125 friendship bonds and community links (Stapleton, 2018). Woodward and Jenkins (2011)
126 encapsulated the term ‘fictive kinship’ to describe the practice of considering the military as
127 ‘family’. The potential loss of this military family becomes a catalyst for ‘experiential
128 isolation’, the truly unique and extraordinary psychological circumstances that veterans find
129 themselves in; suddenly unable to bond psychologically with members of their family and
130 friends and being unable to share a common empathy or moral compass (Stein et al., 2014;
131 2015). Previously accepted and established value-system goalposts are suddenly moved, and
132 ethical and social signposts are taken away; leaving the transitioning veteran isolated and
133 estranged.

134

135 It is argued that a comorbidity exists between loneliness and PTSD symptomology. Ypsilanti
136 et al (2020) concluded that self-disgust and loneliness simultaneously predict PTSD
137 symptomology, and these two measures play a cooperative role in predicting anxiety and
138 depression. Research affirms that loneliness and social isolation are uniquely linked to PTSD
139 symptomology via the catalyst of Combat Stress Reaction (Solomon et al., 1984; 2013);
140 idiosyncratic trigger points that relate to military culture, lived experience and the distinctive
141 pressures exerted by transitioning from the military to civilian life (Keats, 2010). These issues
142 are known to be aggravated by mental health stigmatisation, denial and avoidance within the
143 military and veteran communities (Roanova et al., 2015). A comorbidity potentially exists
144 between PTSD, loneliness, and suicide (Yael and Yager, 2019; Pietrzak et al., 2017). A
145 systematic review and meta-analysis of the link between loneliness and suicidal ideation
146 concluded that loneliness was indeed a significant predictor of suicidal ideation in select
147 communities (McClelland et al., 2020). However, more focused research is now required to gain
148 a better understanding of the unique veteran experience of loneliness, and to subsequently aid the
149 design of interventions aimed at reducing loneliness, social isolation and the consequent rates of
150 suicide and suicidal ideation amongst this community.

151

152 **Aims of Current Study**

153

154 This systematic narrative review aims to synthesize existing evidence incorporating elements
155 of social connection, social isolation, and loneliness within interventions for military veterans
156 with a diagnosis of PTSD, consequently aiming to examine the impact of such interventions
157 upon this community.

158

159 **Method**

160

161 A systematic narrative literature review was conducted. Ethical approval was not required
162 due to it being a review only. Six identified databases were searched (see Table 2; Popay et
163 al., 2012; Snilstveit et al., 2012). Inclusion / exclusion criteria were applied that the accepted
164 studies must involve intervention or treatment for military veterans with PTSD and consider
165 elements of social connection, social isolation, and/or loneliness. Papers must have been
166 written in English and, could not be review papers (see Table 2).

167

168

169

Source	ASSIA ETHOS PsycARTICLES Science Direct Freedom Collection Scopus Web of Science
Search field	Title and abstract
Exclusion	Non-English language Literature reviews
Year of publication	All years
Search Terms	(Veteran OR ex-servic* OR ex-forc* OR ex-militar*) AND (social isolation OR lonel*) AND (post traumatic stress OR post traumatic stress disorder OR PTSD OR trauma*)

170

171 **Table 2.** Systematic search strategy

172

173

174 A total of 202 articles were identified from the title and abstract search (Figure 1; **Moher et**
 175 **al, 2009**). However, 162 were removed as they did not meet the inclusion criteria, i.e., they
 176 were not written in English, did not include any aspect of social connection within the
 177 intervention, or did not include military veterans diagnosed with PTSD. Fifteen papers were
 178 duplicates and thus, were removed. From the 25 remaining studies, a full-text search was
 179 conducted, and two further papers were excluded as it was found that they also did not fulfil
 180 the inclusion criteria. A reference and citation search was carried out on all included papers,
 181 and this resulted in five further papers being included. A total of 28 papers were included in
 182 this review (see supplemental online material).

183

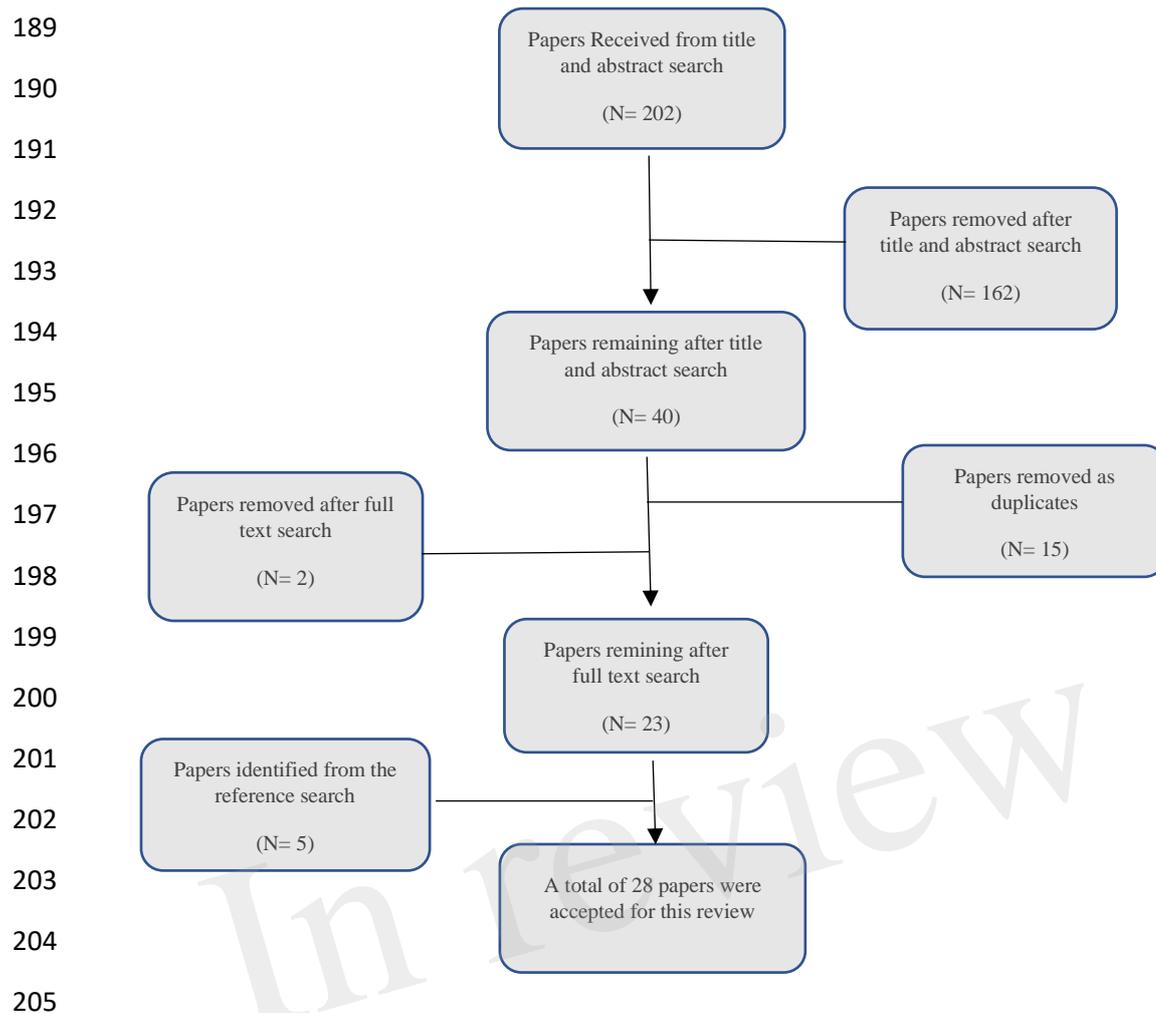
184

185

186

187

188



206 **Figure 1.** Search strategy used within the systematic search (Moher et al, 2009).

207
208 Data analysis was undertaken, using reflexive, deductive thematic synthesis (Braun & Clarke,
209 2006; 2014; 2019) to generate themes. Specifically, the six stages of Thematic Analysis were
210 followed: generating initial codes; searching for themes; reviewing themes; defining and
211 naming themes; and producing the report (Braun & Clarke, 2006). A collaborative approach
212 to coding and data analysis was taken by members of the research team. Initial codes and
213 were discussed between the research team and final themes/sub-themes were generated based
214 on this collective analysis. Given that this is a review into a novel, and potentially pioneering,
215 aspect of military veteran PTSD prognosis and support, it was decided not to utilise any
216 quality assessment tool, such as CASP for this systematic literature review as it would have
217 been counter-productive to exclude any of the identified papers based upon their conceived
218 quality of contribution.

219

220 Results

221 Six main themes were generated reflecting the findings of the 28 identified studies: (i)
222 rethinking the diagnosis of PTSD;(ii) holistic interventions; (iii) peer support; (iv) social
223 reintegration; (v) empowerment through purpose and community, and; (vi) building trust.

224 The age of veterans differed between the studies, most being non-specific with regards to age.
225 Seventeen studies included veterans of all ages (Azevedo et al., 2016; Bauer et al., 2021; Beidel
226 et al., 2017; Bensimon et al., 2008; Bensimon et al., 2012; Bergen-Cico et al., 2018; Bolman,
227 2019; Crowe et al., 2018; Galsgaard and Eskelund, 2020; Holliday et al., 2015; Johnson et al.,
228 2018; Jones et al., 2000; Lobban and Murphy, 2018; Lobban and Murphy, 2020; McLaughlin
229 and Hamilton, 2019; Pezzin et al., 2018; Weiss et al., 2018), whereas four studies were age-
230 specific by virtue of the criteria that they sought veterans from the Vietnam War (1961-75)
231 (Johnson et al., 2004; Obenchain and Silver, 1991; Otter and Currie, 2004; Ragsdale et al.,
232 1996) or Post-9/11 / Iraq and Afghanistan veterans (Beidel et al., 2016; Cushing et al., 2018;
233 Lawrence et al., 2017; Lawrence et al., 2019; Matthieu et al., 2017). Three studies focused
234 solely on female veterans, with two of these relating to rural female veterans who had suffered
235 military sexual trauma (Azevedo et al., 2016; Weiss et al., 2018), and the other relating to a
236 single case study (Trahan et al., 2016).

237 Eight studies utilised animal-focused interventions (Bergen-Cico et al., 2018; Crowe et al.,
238 2018; Galsgaard et al., 2020; McLaughlin and Hamilton, 2019; Nevins et al., 2013; Johnson et
239 al., 2018; Trahan et al., 2016 and Bolman, 2019). Three studies investigated the efficacy of
240 music related interventions (Bensimon et al., 2008; Bensimon et al., 2012; Pezzin et al., 2018).
241 One study focused upon yoga as an intervention (Cushing et al., 2018), one upon an adventure-
242 activity intervention (Ragsdale et al., 1996), whilst three studies examined the power of civic
243 service to ameliorate PTSD symptomology (Lawrence et al., 2017; Lawrence et al., 2019;
244 Matthieu et al., 2017). One study focused upon military museums and art therapy (Lobban and
245 Murphy, 2020), another solely upon art therapy (Lobban and Murphy, 2018), whilst another
246 investigated the efficacy of virtual reality exposure as a suitable medium for PTSD intervention
247 (Beidel et al., 2016). One study involved exercise to mediate PTSD symptomology (Otter and
248 Currie, 2004), whilst one (Johnson et al., 2004) sought to incorporate a veteran's family into
249 the whole treatment and support process.

250 The vast majority of studies (n=21) were carried out in the USA (Azevedo et al., 2016; Bauer
251 et al., 2021; Beidel et al., 2017; Bergen-Cico et al., 2018; Bolman, 2019; Crowe et al., 2018;
252 Holliday et al., 2015; Johnson et al., 2018; Jones et al., 2000; Pezzin et al., 2018; Weiss et al.,
253 2018; Johnson et al., 2004; Obenchain et al., 1991; Ragsdale et al., 1996; Beidel et al., 2016;
254 Cushing et al., 2018; Lawrence et al., 2017; Lawrence et al., 2019; Matthieu et al., 2017; Trahan
255 et al., 2016) whilst two were conducted in Israel (Bensimon et al., 2008; 2012), two in the UK
256 (Lobban and Murphy, 2018; 2020), one in Denmark (Galsgaard and Eskelund, 2020) and two
257 in Australia (McLaughlin and Hamilton, 2019; Otter and Currie, 2004).

258 Seven studies used a mixed-methods approach (Beidel et al., 2017; Bensimon et al., 2008;
259 Bensimon et al., 2021; Bergen-Cico et al., 2018; Lobban and Murphy, 2020; Johnson et al.,
260 2004; Beidel et al., 2016), twelve studies used a quantitative approach (Bauer et al., 2021;
261 Holliday et al., 2015; Johnson et al., 2018; Lobban and Murphy, 2018; Pezzin et al., 2018;
262 Weiss et al., 2018; Ragsdale et al., 1996; Lawrence et al., 2017; Lawrence et al., 2019; Matthieu
263 et al., 2017; Trahan et al., 2016) and nine used a qualitative approach (Azevedo et al., 2016;
264 Bolman, 2019; Crowe et al., 2018; Galsgaard and Eskelund, 2020; Jones et al., 2000;
265 McLaughlin and Hamilton, 2019; Obenchain and Silver, 1991; Otter and Currie, 2004; Cushing
266 et al., 2018). Within each broad methodological approach a variety of methods were employed;
267 eleven studies employed focus groups or a group-centric approach (Bensimon et al., 2008;
268 Bensimon et al., 2021; Crowe et al., 2018; Galsgaard and Eskelund, 2020; Jones et al., 2000;

269 Lobban and Murphy, 2018; Lobban and Murphy, 2020; Johnson et al., 2004; Obenchain and
 270 Silver, 1991; Otter and Currie, 2004; Ragsdale et al., 1996), eight used semi-structured
 271 interviews (Beidel et al., 2017; Bensimon et al., 2008; Bensimon et al., 2012; Crowe et al.,
 272 2018; Galsgaard and Eskelund, 2020; Johnson et al., 2004; Beidel et al., 2016; Cushing et al.,
 273 2018) and sixteen utilised questionnaires (Azevedo et al., 2016; Bauer et al., 2021; Beidel et
 274 al., 2017; Holliday et al., 2015; Johnson et al., 2018; Lobban and Murphy, 2018; Lobban and
 275 Murphy, 2020; McLaughlin and Hamilton, 2019; Weiss et al., 2018; Beidel et al., 2016;
 276 Lawrence et al., 2017; Lawrence et al., 2019; Matthieu et al., 2017; Trahan et al., 2016). Two
 277 studies were quasi-experimental (Bergen-Cico et al., 2018; Ragsdale et al., 1996), two studies
 278 utilised a randomised trial (Johnson et al., 2018; Pezzin et al., 2018) and two a controlled trial
 279 (Beidel et al., 2017; Beidel et al., 2016). Five studies were pilot analyses (Beidel et al., 2017;
 280 Bensimon et al., 2012; Galsgaard and Eskelund, 2020; Pezzin et al., 2018; Weiss et al., 2018).

281 Of the studies using questionnaires, six specifically measured loneliness, using either the
 282 SELSA (Johnson et al., 2018) or UCLA loneliness self-report scales (Lobban and Murphy,
 283 2020; Ragsdale et al., 1996; Lawrence et al., 2017; Lawrence et al., 2019; Matthieu et al.,
 284 2017).

285 **Main Theme 1: Rethinking the diagnosis of PTSD**

286 A central banner that emanates from almost all of the identified studies, other than those
 287 focused on talking therapies such as Cognitive Processing Therapy (CPT; Holliday et al., 2015)
 288 and Cognitive Behaviour Therapy (CBT; Trahan et al., 2016), is an acceptance that the current
 289 parameters of PTSD diagnoses and treatment are, perhaps, too narrow and restrictive. The
 290 strength of the interventions explored here emanates from their recognition of the need to tackle
 291 loneliness and social isolation. The diagnosis and treatment of PTSD has, potentially, been
 292 viewed in too reductionist a fashion, relying too heavily on the traditional views and
 293 approaches; rather than seeing the existential and moral dimensions of treating the whole
 294 person holistically (Walton et al., 1991; Ginzburg et al, 2010; Iversen et al, 2009).

295 Walton et al (1991) and Cacioppo et al (2006), assisted by Wilson, Hill and Kiernan (2018)
 296 who provide the bespoke nature of military and veteran community, assist moving the dialogue,
 297 relating to what the true inherent ingredients of loneliness and social isolation really are, to
 298 where it needs to be to be current and relevant for military and veteran PTSD. Such red flags
 299 as depression, guilt, shame, psychosexual difficulties, betrayal, stigmatisation, self-medication
 300 and addiction and increased vulnerability to re-traumatisation all contribute to the destructive
 301 cocktail that manifests in the loneliness and social isolation of those living with a PTSD
 302 diagnosis in these communities (Walton et al., 1991; Ginzburg et al, 2010; Iversen et al, 2009;
 303 Van Ommeren et al, 2002; Palic and Elklit, 2011). Any fit for purpose system, therefore, which
 304 seeks to diagnose, signpost and support these communities must acknowledge and
 305 accommodate these catalysts.

306 **Main Theme 2: Holistic interventions**

307 Studies within this review identify the use of animals (Bergen-Cico et al., 2018; Bolman, 2019;
 308 Crowe et al., 2018; Galsgaard and Eskelund, 2020; Johnson et al., 2018; McLaughlin and
 309 Hamilton, 2019; Matthieu et al., 2017), music (Bensimon et al., 2008; 2012; Pezzin et al.,
 310 2018), art and museums (Lobban and Murphy, 2018; Lobban and Murphy, 2020) and

311 adventure training (Ragsdale et al., 1996) as holistic interventions, which seek to offer the
312 PTSD diagnosed veteran meaningful engagement, social connections, and a sense of purpose,
313 thus ameliorating the negative mindset maintained by loneliness and social isolation; holistic
314 in as much as they offer a treatment of mind and body as a whole, via the conduit of addressing
315 the often ignored social, emotional and personal catalysts. Four studies found that dogs offered
316 a non-judgmental, unconditional, support and buffer, facilitating responsibility and a sense of
317 purpose (Bergen-Cico et al., 2018; Crowe et al., 2018; Galsgaard and Eskelund, 2020;
318 McLaughlin and Hamilton, 2019). The study that focused on caring for a traumatised parrot
319 fostered a sense of ‘becoming well together’ and mutually shared suffering and empathy
320 (Bolman, 2019). The studies that explored horse riding therapy found that the veterans were
321 able to build mastery, improve mindfulness skills, and were able to connect with the animal
322 (Johnson et al., 2018; Nevins et al, 2013). These animal-centric studies assessed outcomes via
323 a combination of PTSD, loneliness, and social isolation metrics and group interviews. One
324 study (Obenchain and Silver, 1991) provided Vietnam veterans an opportunity to address social
325 isolation and ‘alienation’ via the affirmation provided through a ‘Welcoming Home’ ceremony,
326 which aided societal participation and reintegration. The efficacy of these interventions appears
327 to be that they focus on improving the overall wellbeing of the veteran, considering the various
328 social and personal contributors to their difficulties, rather than focusing on PTSD
329 symptomology in isolation.

330 **Main Theme 3: Peer support**

331 A dominant theme running through the identified studies was the power of peer support in
332 fostering a suitable environment for an intervention to be effective; a significant number
333 adopting a group focused delivery approach (Bensimon et al., 2008; 2012; Crowe et al., 2018;
334 Galsgaard and Eskelund, 2020; Jones et al., 2000; Lobban and Murphy, 2018; 2020; Johnson
335 et al., 2004; Obenchain and Silver, 1991; Otter and Currie, 2004; Ragsdale et al., 1996), and
336 many others taking advantage of this group dynamic indirectly through the creation of a ‘team
337 atmosphere’. The worth of creating an environment which is accepting, normalizing, and non-
338 judgmental for PTSD diagnosed veterans is clear; an atmosphere of shared understanding
339 empowering the healing process (Lobban and Murphy, 2018; 2020; Obenchain and Silver,
340 1991). This approach acknowledges and utilizes a strength of the military and veteran
341 communities; its sense of brother/sisterhood, its ‘fictive kinship’ (Woodward and Jenkins,
342 2011), that helps veterans re-engage and re-motivate each other and take a lead in their own
343 respective recovery journeys.

344 **Main Theme 4: Social reintegration**

345 Through the mitigation of a veteran’s estrangement from their community, loved ones, friends
346 and family, it is possible to cultivate an environment where mindfulness, self-awareness and
347 motivation is developed; in contrast to an individual treatment that focuses solely on tackling
348 PTSD symptoms. Within the veteran community, difficulties with social interaction predict
349 lower reductions in PTSD symptomology after treatment interventions such as CPT, CBT and
350 pharmacology (Holliday et al., 2015; Trahan et al., 2016). However, the holistic interventions,
351 which address the disenfranchisement and estrangement experienced by a transitioning veteran
352 and their family (Azevedo et al., 2016; Bauer et al., 2021; Bensimon et al., 2008; 2012; Bergen-
353 Cico et al., 2018; Bolman, 2019; Crowe et al., 2018; Galsgaard and Eskelund, 2020; Johnson
354 et al., 2018; Jones et al., 2000; Lobban and Murphy, 2018; 2020; McLaughlin and Hamilton,

2019; Pezzin et al., 2018; Weiss et al., 2018; Johnson et al., 2004; Obenchain and Silver, 1991; Otter and Currie, 2004; Ragsdale et al., 1996; Cushing et al., 2018; Lawrence et al., 2017; Lawrence et al., 2019; Matthieu et al., 2017; Trahan et al., 2016), generally show either a direct reduction of PTSD symptomology (Bauer et al., 2021; Beidel et al., 2017; Bergen-Cico et al., 2018; Galsgaard and Eskelund, 2020; Johnson et al., 2018; Lobban and Murphy, 2018; Pezzin et al., 2018; Weiss et al., 2018; Ragsdale et al., 1996; Beidel et al., 2016; Lawrence et al., 2017; Lawrence et al., 2019; Matthieu et al., 2017; Trahan et al., 2016; Nevins et al., 2013) or an indirect reduction of such via mitigation of social estrangement and isolation (Bauer et al., 2021; Beidel et al., 2017; Bergen-Cico et al., 2018; Holliday et al., 2015; Johnson et al., 2018; Lobban and Murphy, 2018; Weiss et al., 2018; Johnson et al., 2004; Obenchain and Silver, 1991; Matthieu et al., 2017; Nevins et al., 2013). More inclusive interventions, which seek to target the panoply of social integration and quality of life issues, would appear to address the whole lifestyle and culture of symptomology that is endemic within veteran PTSD; taking account of the unique community that the veteran has emerged from, providing a bespoke alternative to focused talking therapy or medication, allowing the veteran to take control over their prognosis and empowering their drive to recovery. Some studies (Bensimon et al., 2008; 2012; Pezzin et al., 2018) targeted group cohesion, togetherness, and connectedness, empowering veterans to gain a sense of control and esteem through mastery of a new skill. Retention and attrition rates are improved through the distraction and mindfulness facilitated by learning a musical instrument (Pezzin et al., 2018). The art and museum interventions (Lobban and Murphy, 2018; 2020) developed a sense of belonging, group bonding and self-efficacy through targeting experiential avoidance and assessing this progress through workshops and interviews. ‘Sanctuary Trauma’, the internal conflict within veterans relating to the apparent deficiency of their home environment, once they transition from the military, was addressed by the application of a ‘Welcome Home’ ceremony to Vietnam veterans in one of the studies (Obenchain and Silver, 1991); aiming to focus upon their sense of social isolation and ‘alienation’ through a process of re-affirmation, reintegration, and societal participation. It is, perhaps, surprising that only one study (Johnson et al., 2004) sought to involve the family of diagnosed veterans within the treatment and support process. Family-centric preventive interventions have habitually manifested a high efficacy for promoting positive outcomes with the PTSD diagnosed veteran and supporting family unit, and for encouraging consistent engagement, retention and focus upon the recovery journey (Lester et al., 2016).

387 **Main Theme 5: Empowerment through purpose and community**

388 Empowerment of PTSD diagnosed veterans through the facilitation of hope, purpose,
389 challenge, direction and community (Bauer et al., 2021; Beidel et al., 2017; Lobban and
390 Murphy, 2018; Weiss et al., 2018; Obenchain and Silver, 1991; Beidel et al., 2016; Cushing et
391 al., 2018; Lawrence et al., 2017) creates motivation, self-efficacy and opportunity for the
392 veteran, via skill-building interventions, increasing their employability (Azevedo et al., 2016;
393 Bauer et al., 2021; Weiss et al., 2018) and enabling their enrolment in voluntary schemes that
394 contribute to the good of the community; promoting pride, improved self-esteem, increased
395 confidence, courage and resilience (Lawrence et al., 2017; 2019; Matthieu et al., 2017).

396 **Main Theme 6: Building trust**

397 None of the above-mentioned themes would have any efficacy or power without the full
398 investment, engagement and commitment of the PTSD diagnosed veterans who need support,

399 guidance and signposting, many at the nadir of their respective journeys. Levels of veteran
400 attrition and disengagement are high for the traditional PTSD therapies that they are directed
401 towards (Haveman-Gould, 2018), this being contingent upon endemic levels of distrust
402 amongst this community regarding the relevance and appropriacy of these measures and the
403 disconnect they see between themselves and the ‘white coat’ experts who tell them what is best
404 for themselves. Effective interventions must, therefore, be able to empower and facilitate high
405 levels of trust amongst the PTSD diagnosed veteran community. Holistic therapies succeed in
406 fostering the required levels of trust by placing the veteran more centrally in the process,
407 empowering them to feel as if they driving their own recovery, and not merely a passenger in
408 someone else’s vehicle (Azevedo et al., 2016; Bauer et al., 2021; Beidel et al., 2017; Weiss et
409 al., 2018; Johnson et al., 2004; Obenchain and Silver, 1991; Lawrence et al., 2017; 2019;
410 Matthieu et al., 2017).

411 Discussion

412 The purpose of this review was to explore the effectiveness of interventions for tackling
413 loneliness and social isolation in PTSD-diagnosed military veterans. Six themes were
414 generated: (i) rethinking PTSD as a diagnosis; (ii) holistic intervention;(iii) peer support; (iv)
415 social integration;(v) empowerment through purpose and community, and; (vi) building trust.
416 The papers highlighted that holistic interventions which can mitigate experiential loneliness
417 and social isolation for veterans with PTSD include the following characteristics: a direct focus
418 upon social reintegration and engagement, psychosocial functioning, building trust, peer
419 support, group cohesiveness, empowerment through a sense of purpose and learning new skills.
420 Peer and group-oriented holistic interventions were able to effectively target loneliness, and
421 social isolation through improvements in the veterans’ social and community engagement, self-
422 efficacy, self-purpose, and through instilling hope and direction.

423 This review highlights the importance of socially reintegrating a PTSD-diagnosed veteran back
424 within their community and with their loved ones. This social reintegration is a prerequisite of
425 an effective treatment and a positive recovery journey; fostering growth and engagement
426 through the conduit of group cohesion, togetherness, and connectedness. Linking the veteran
427 back in with their vital support structures and, most importantly, empowering them to be able
428 to communicate openly and honestly with that network, is paramount (Azevedo et al., 2016;
429 Bauer et al., 2021; Weiss et al., 2018; Obenchain and Silver, 1991; Lawrence et al., 2017; 2019;
430 Matthieu et al., 2017). As the studies suggest, the issues of alienation and stigmatization can
431 be countered effectively, but also subtly (Bensimon et al., 2008; 2012; Bergen-Cico et al., 2018;
432 Bolman, 2019; Crowe et al., 2018; Galsgaard and Eskelund, 2020; Johnson et al., 2018; Lobban
433 and Murphy, 2018; 2020; McLaughlin and Hamilton, 2019; Pezzin et al., 2018; Ragsdale et
434 al., 1996; Cushing et al., 2018). The panoply of issues, logistical and psychological,
435 encountered by a veteran transitioning from the military to civilian life need to have been
436 effectively identified, pre-empted and addressed (Azevedo et al., 2016; Bauer et al., 2021;
437 Weiss et al., 2018; Johnson et al., 2004; Obenchain and Silver, 1991; Lawrence et al., 2017;
438 2019; Matthieu et al., 2017) as is highlighted in recent research and policy focused on
439 understanding the needs of, and supporting, veterans through transition (RBL, 2014; SSAFA,
440 2017; Shepherd et al., 2020; Sonethavillay et al., 2018; Keats, 2010; Cooper et al., 2018; MoD,
441 2021; NHS, 2019; HM Government, 2018).

442 A significant number of the studies also highlight the importance of trust (Azevedo et al., 2016;
443 Bauer et al., 2021; Beidel et al., 2017; Weiss et al., 2018; Johnson et al., 2004; Obenchain and
444 Silver, 1991; Lawrence et al., 2017; 2019; Matthieu et al., 2017). Engagement with any support

445 and recovery mechanism is contingent upon the veteran trusting the process; trust of those
446 involved in the process, trusting the agenda, and trusting the aspirations of the process. Trust
447 takes time to build, especially within the PTSD-diagnosed veteran community which has
448 become alienated and estranged from both their natural environment, the military community
449 which it has now left, and from their new civilian environment, which it fails to identify or
450 reconcile with. Awareness of the needs for interventions to ‘culturally adapt’ to uniquely
451 homogenous communities is evolving, even within the military and veteran worlds, but lessons
452 learned need to be consolidated and cultivated further (Whealin et al., 2017). Transparency,
453 openness and listening sincerely to the needs, aspirations and fears of the veteran community
454 are key. As highlighted by recent UK Government strategies and NHS trusts, effective
455 intervention should accommodate these needs, and seek to build the necessary trust (MoD,
456 2021; NHS, 2019; HM Government, 2018; Whealin et al., 2017). Active involvement of the
457 PTSD-diagnosed veteran community within care planning and transition (NHS, 2019; HM
458 Government, 2018) and within the design and construction stages of interventions through
459 research (Bortoli, 2021) are some ways of effectively achieving this.

460 The power of peer-centred support and mutual understanding provides a sense of non-
461 judgemental acceptance and normalisation (Bensimon et al., 2008; 2012; Crowe et al., 2018;
462 Galsgaard and Eskelund, 2020; Jones et al., 2000; Lobban and Murphy, 2018; 2020; Johnson
463 et al., 2004; Obenchain and Silver, 1991; Otter and Currie, 2004; Ragsdale et al., 1996) and
464 supports the mitigation of loneliness within PTSD. This camaraderie is especially important at
465 the time of transition, when a serving member of the armed forces becomes a veteran. This is
466 due to the potential sudden loss of social connectedness and intense bonds of friendship that
467 they had during military service (Cooper et al., 2018; MoD, 2021; NHS, 2019). A PTSD
468 diagnosed veteran is more so able to normalise, accept, and consequently manage, their
469 symptomology once they are around their similarly diagnosed comrades (Bensimon et al.,
470 2008; 2012; Crowe et al., 2018; Galsgaard and Eskelund, 2020; Jones et al., 2000; Lobban and
471 Murphy, 2018; 2020; Johnson et al., 2004; Obenchain and Silver, 1991; Otter and Currie, 2004;
472 Ragsdale et al., 1996). The commonality of suffering and common language of military /
473 veteran PTSD, built upon the forged ‘fictive kinship’ (Woodward and Jenkins, 2011), is a
474 powerful conduit to achieve these monumental and necessary steps towards normalisation,
475 acceptance, and management; and the fostering of the necessary purpose, meaning, and hope
476 (Bauer et al., 2021; Beidel et al., 2017; Lobban and Murphy, 2018; Weiss et al., 2018;
477 Obenchain and Silver, 1991; Beidel et al., 2016; Cushing et al., 2018; Lawrence et al., 2017).
478 In this manner, peer support becomes a complimentary mechanism for increasing treatment
479 engagement and reducing negativity, pessimism, and dropout from veterans who are receiving
480 ongoing support, through investing them in a process in which they feel central (Hundt et al.,
481 2015).

482 Symptom-centric interventions tend to focus upon mental health professionals ‘doing’
483 interventions to the veterans, but research indicates that patients are likely to drop out of
484 treatment if they do not receive what it is they feel they need (Veeninga and Hafkenscheid,
485 2004). The findings of this review suggest that holistic, non-symptom focussed, interventions
486 have a productive role to play in the mitigation of veteran PTSD symptomology, its treatment
487 and support, especially perhaps during the period of transition (Azevedo et al., 2016; Bauer et
488 al., 2021; Bensimon et al., 2008; 2012; Bergen-Cico et al., 2018; Bolman, 2019; Crowe et al.,
489 2018; Galsgaard and Eskelund, 2020; Johnson et al., 2018; Jones et al., 2000; Lobban and

490 [Murphy, 2018; 2020](#); [McLaughlin and Hamilton, 2019](#); [Pezzin et al., 2018](#); [Weiss et al., 2018](#);
491 [Johnson et al., 2004](#); [Obenchain and Silver, 1991](#); [Otter and Currie, 2004](#); [Ragsdale et al., 1996](#);
492 [Cushing et al., 2018](#); [Lawrence et al., 2017; 2019](#); [Matthieu et al., 2017](#); [Trahan et al., 2016](#));
493 perhaps working in collaboration with, and sometimes working in place of, more traditional
494 medical, psychological and pharmacological approaches. These interventions appear to be
495 effective because they target the overall wellbeing of the veteran, rather than focussing on
496 PTSD symptomology in isolation. The studies identified in the review broach this issue by
497 fostering an atmosphere of trust, normalisation, and mutual endeavour, which may facilitate
498 the PTSD diagnosed veterans' investment in the whole process of 'therapy' and taking personal
499 ownership of their recovery pathways. Recent research developments, regarding holistic, non-
500 trauma focussed, interventions, coupled with the raising of awareness levels of what it is to be
501 a transitioning veteran, ([Cooper et al., 2018](#); [MoD, 2021](#); [NHS, 2019](#); [HM Government, 2018](#);
502 [Hundt, 2015](#); [McGill, 2019](#); [Wilson, 2018; 2020](#)) should include a focus on the effective
503 mitigation of the loneliness and social isolation elements of veteran PTSD symptomology, in
504 accordance with the Defence holistic transition policy ([MoD, 2021](#)).

505 The implementation of a holistic and personalised approach, and empowering veterans to be
506 involved in their recovery, was a running theme within the studies included in the review. This
507 is in line with the UK Government and the Ministry of Defence strategy, which addresses the
508 needs, concerns and aspirations of the military and veteran communities with regards to their
509 mental health and general wellbeing, especially during the period of transition ([MoD, 2021](#);
510 [NHS, 2019](#); [HM Government, 2018](#)). Levels of engagement and acceptance, within both the
511 military and civilian worlds, of holistic, peer focussed and delivered, interventions have
512 accelerated in recent years, as well as a wider acceptance of the power of targeting both mind
513 and body ([Hundt, 2015](#); [Veeninga and Hafkenscheid, 2004](#); [McGill, 2019](#)). By promoting, and
514 securing, the effective transition of our military personnel we empower them to become the
515 valuable, contributory, members of society that they have the potential to be; fully utilising all
516 the skills, abilities and positive characteristics of their military careers ([MoD, 2021](#); [NHS,](#)
517 [2019](#); [HM Government, 2018](#)). To achieve this, however, requires the full collaboration,
518 investment and coordination of organisations and charities within the sector, and the full
519 endorsement of this ethos by the Government, Ministry of Defence, National Health Service
520 and third sector organisations. This emerging, holistic, viewpoint has a strong synergy with the
521 principles of Trauma-Informed Care (TIC) that are becoming more accepted and instrumental
522 within the approach taken by the National Health Service when addressing the needs of the
523 nation's mental health care and support ([NHS, 2020](#)). At the heart of TIC is a focus upon the
524 causes of the presented malady and a move away from the previous focus on symptoms.

525 **Strengths and Limitations of Review**

526 This review seeks to be pioneering and ground-breaking in it's proposal to re-assess and re-
527 engage with a vulnerable population which has conceivably been ostracised and estranged by
528 traditional and reductionist outlooks and values. The power and strength of this review,
529 therefore, lies in it's desire and aspiration to remove the blinkers, throw away the rule book
530 and begin to move the dialogue to where it needs to be; to be current, relevant, and authentic
531 to the needs, concerns and hopes of this population. A conscious decision was made to not
532 utilise any quality assessment tool, such as CASP, upon the identified papers and to cast as
533 wide a net as possible, to gather and glean as much evidence of good practice and strategy,
534 with regards to loneliness and isolation within the PTSD diagnosed veteran community, as is

535 feasible. Only by the laying of such broad and diverse foundations can the true worth of holistic
536 interventions be effectively gauged, and the direction of the journey forwards be charted.

537 That said, the review has its limitations. Only papers written in English, from the selected
538 sources and utilising the chosen search terms, were examined. Therefore, any papers outside
539 of these parameters were excluded. The chosen search terms, and sources selected from, could
540 be viewed as subjective and biased perhaps, depending upon one's previous experience within
541 the use of holistic, non-traditional, interventions to mitigate loneliness and social isolation
542 within the PTSD diagnosed veteran community?

543 There are several limitations to the studies identified, and as a consequence, areas for further
544 research are identified below. Global research which directly addresses loneliness and social
545 isolation within veteran PTSD is both limited and localised. Only 2 out of 28 studies were UK-
546 based (Lobban and Murphy, 2018; 2020), whereas 21 were US studies (Azevedo et al., 2016;
547 Bauer et al., 2021; Beidel et al., 2017; Bergen-Cico et al., 2018; Bolman, 2019; Crowe et al.,
548 2018; Holliday et al., 2015; Johnson et al., 2018; Jones et al., 2000; Pezzin et al., 2018; Weiss
549 et al., 2018; Johnson et al., 2004; Obenchain et al., 1991; Ragsdale et al., 1996; Beidel et al.,
550 2016; Cushing et al., 2018; Lawrence et al., 2017; 2019; Matthieu et al., 2017; Trahan et al.,
551 2016), two were conducted in Israel (Bensimon et al., 2008; 2012), one in Denmark (Galsgaard
552 and Eskelund, 2020) and two in Australia (McLaughlin and Hamilton, 2019; Otter and Currie,
553 2004). Endemic cultural differences exist between the UK and the other countries, extending
554 to their respective armed forces and veteran communities, raising the need for more UK-centric
555 veteran research to be carried out.

556 Service user/carer involvement in the design of the identified studies was not mentioned. It is
557 important that service user/carers are involved in the research process to ensure the design of
558 interventions that the community can trust and invest in. Future research should embrace
559 service user/carer involvement in the design of appropriate interventions, in compliance with
560 the National Institute for Health Research (NIHR) (Bortoli, 2021). From the 28 identified
561 studies, fifteen directly address loneliness and social isolation, via the conduits of promoting
562 social engagement and functioning (Azevedo et al., 2016; Bauer et al., 2021; Beidel et al.,
563 2017; Bensimon et al., 2008; 2012; Crowe, 2018; Johnson, 2018; Pezzin et al., 2018; Weiss et
564 al., 2018; Johnson et al., 2004; Obenchain et al., 1991) and psychosocial functioning (Holliday,
565 2015; Lawrence et al., 2017; 2019; Matthieu et al., 2017). This trend must be cultivated and
566 developed further, in order to give consequent conclusions and recommendations more
567 statistical power and authority.

568 A significant number of the studies utilised a small research cohort (Bensimon et al., 2012;
569 Bergen-Cico et al., 2018; Galsgaard and Eskelund, 2020; Holliday et al., 2015; Lobban and
570 Murphy, 2018; 2020; McLaughlin and Hamilton, 2019; Weiss et al., 2018; Johnson et al., 2004;
571 Ragsdale et al., 1996; Lawrence et al., 2019; Matthieu et al., 2017) and, therefore, only have
572 limited statistical power and moderate effect sizes. Many of the studies are novel in approach
573 and are, therefore, potentially both logistically complex in nature and problematic to quantify
574 regarding efficacy (Bensimon et al., 2008; Lobban and Murphy, 2018; 2020; Obenchain and
575 Silver, 1991; Otter and Currie, 2004), as they are moving away from established research norms
576 of medical and psychological protocol and classification. Furthermore, many are overly-
577 representative of white males aged 30-50; albeit that the military does recruit more males than
578 females and there is also an age criterion for service. It would be encouraging, nonetheless, to

579 see more female veterans and people from BAME communities within research. There were
580 only two studies which considered African American PTSD diagnosed veterans (Jones, 2000;
581 Nevins, 2013). A number of studies also utilise self-reporting of PTSD symptomology, rather
582 than the 'gold standard', clinically administered, assessment (Bolman, 2019; Pezzin et al.,
583 2018; Beidel et al., 2016; Cushing et al., 2018). This perhaps compromises the reliability of the
584 results because some people who identify as having PTSD may not actually meet the diagnostic
585 criteria. Furthermore, few studies conducted a pre, post and 6 month follow up. This approach
586 would have given a clearer understanding of whether the interventions were effective in the
587 long term, and therefore follow ups should be considered in future research.

588 **Future Research**

589 More dedicated consideration needs to be given to the mitigation of veteran PTSD through
590 holistic and bespoke measures that directly address the loneliness and social isolation elements
591 of a PTSD diagnosed veteran's symptomology; out of the 28 identified studies only fifteen
592 directly address these issues. Future research should investigate the order and combination that
593 interventions are carried out; for example, whether being offered a holistic intervention prior
594 to any other interventions, such as therapy or medication, empowers a veteran to engage more
595 with PTSD focused interventions. The lived experience, and direct involvement, of PTSD
596 diagnosed veterans should be given prominence in the process of designing effective
597 interventions that better understand their loneliness and social isolation. Furthermore, future
598 research should seek to examine the potential link between early years trauma and later
599 diagnosis of PTSD within the military and veteran communities.

600 **Conclusion**

601 There has been some progress in recent years in the support offered to UK veterans, with an
602 increasing focus on their mental health and wellbeing. Significant collaboration has been made
603 between the Ministry of Defence, HM Government, the National Health Service and the third
604 sector charities and support groups, capturing the synergy and clarity of focus that can be
605 obtained when diverse organisations jointly own key decisions, share research for common
606 aspirations and are committed to wholly altruistic ideals (Bortoli, 2021). This has resulted in a
607 more coherent, targeted and joined up service for the veteran, PTSD-diagnosed, community
608 and has begun to address previously identified shortcomings that existed with regards to the
609 need to identify the unique position of the veteran community and their need for bespoke
610 support and treatment, acknowledging the role that the community itself can take within their
611 journey forwards (Hundt et al., 2015) and increasing receptiveness amongst the parties
612 involved to raise awareness of the true aetiology of veteran PTSD symptomology (McGill et
613 al., 2019; Wilson et al., 2018; 2020) and the role that transition, from the military to civilian
614 life, plays in experiences of loneliness and social isolation (MoD, 2021; NHS, 2019; HM
615 Government, 2018). This review highlights the instrumental position of loneliness and social
616 isolation within the lives of the PTSD-diagnosed veteran community, and the mitigating role
617 of holistic, non-clinical, non-trauma focussed, interventions.

618

619 **Data Availability Statement**

620 This is a systematic narrative review, no raw data has been utilised.

621

622 Ethics Statement

623 This is a systematic narrative review and, as such, no ethics approval was required.

624

625 Author Contributions

626 RG contributed to the data analysis, was the primary author of the manuscript and had overall
627 responsibility. MK contributed to the data analysis and co-authored the manuscript. JK
628 contributed to the data analysis and co-authored the manuscript. GWM contributed to the data
629 analysis and co-authored the manuscript. DF and GO co-authored the manuscript. All authors
630 contributed to the article and approved the submitted version.

631

632 Conflict of Interest

633 The authors declare that the research was conducted in the absence of any commercial or
634 financial relationship that could be construed as a potential conflict of interest.

635

636 Funding

637 Thank you to the United Kingdom Armed Forces Covenant Fund Trust for funding a two-year
638 research project through their Tackling Loneliness Programme.

639

640

641 References

642

- 643 1. American Psychiatric Association. (1980). *Diagnostic and Statistical Manual of*
644 *Mental Disorders* (3rd ed.).
- 645 2. American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of*
646 *Mental Disorders* (5th ed.).
- 647 3. Azevedo, K. J., Weiss, B. J., Webb, K., Gimeno, J., & Cloitre, M. (2016).
648 Piloting specialized mental health care for rural women veterans using STAIR
649 delivered via telemental health: Implications for reducing health disparities.
650 *Journal of Health Care for the Poor and Underserved*, 27, 1–7.
651 <https://doi.org/10.1353/hpu.2016.0189>
- 652 4. Bauer, A., Amspoker, A. B., Fletcher, T. L., Jackson, C., Jacobs, A., Hogan, J. et
653 al. (2021). A Resource Building Virtual Care Programme: improving symptoms
654 and social functioning among female and male rural veterans. *European Journal*
655 *of Psychotraumatology*, 12(1). Doi:10.1080/20008198.2020.1860357
- 656 5. Beidel, D. C., Frueh, B. C., Neera, S. M., Bowers, C. A., Trachik, B., Uhde, T.
657 W. et al. (2016). Trauma management therapy with virtual-reality augmented

- 658 exposure therapy for combat-related PTSD: A randomized controlled trial.
 659 *Journal of Anxiety Disorders*, 61, 64 – 74. doi:10.1016/j.janxdis.2017.08.005
- 660 6. Beidel, D. C., Frueh, B. C., Neer, S. M. & Lejuez, C. W. (2017). The efficacy of
 661 Trauma Management Therapy: A controlled pilot investigation of a three-week
 662 intensive outpatient program for combat related PTSD. *Journal of Anxiety*
 663 *Disorders*, 50, 23-32. doi:10.1016/j.janxdis.2017.05.001
- 664 7. Bensimon, M., Amir, D. A. & Wolf, Y. (2008). Drumming through trauma:
 665 Music therapy with post-traumatic soldiers. *The Arts in Psychotherapy*, 35(1),
 666 34-48. doi:10.1016/j.aip.2007.09.002
- 667 8. Bensimon, M., Amir, D. A. & Wolf, Y. (2012). A pendulum between trauma and
 668 life: Group music therapy with post-traumatized soldiers. *The Arts in*
 669 *Psychotherapy*, 39(4), 223-233. doi:10.1016/j.aip.2021.03.005
- 670 9. Bergen-Cico, D., Smith, Y., Wolford, K., Gooley, C., Hannon, K., Woodruff, R.
 671 et al. (2018). Dog Ownership and Training Reduces Post-Traumatic Stress
 672 Symptoms and Increases Self-Compassion Among Veterans: Results of a
 673 Longitudinal Control Study. *Journal of Alternative Complementary Medicine*,
 674 24(12), 1166 – 1175. doi:10.1089/acm.2018.0179.
- 675 10. Bolman, B. (2019). Parroting patriots: interspecies trauma and becoming well-
 676 together. *Medical Humanities*, 45(3), 305 -312. doi:10.1136/medhum-2018-
 677 011630
- 678 11. Bortoli, S. (2021). NIHR Guidance on co-producing a research project. National
 679 Institute for Health Research; Involve.
- 680 12. Braun, V., & Clarke, V. (2006). Using thematic analysis in
 681 psychology. *Qualitative research in psychology*, 3(2), 77-101
- 682 13. Braun, V. & Clarke, V. (2014). What can ‘thematic analysis’ offer health and
 683 wellbeing researchers? *International Journal of Qualitative Studies in Health and*
 684 *Well-being*, 9, 26152. Doi:10.3402/qhw.v9.26152
- 685 14. Braun, V. & Clarke, V. (2019). Reflecting on reflexive thematic analysis.
 686 *Qualitative Research in Sport, Exercise and Health*, 11, 4, 589-597.
 687 doi:10.1080/2159676X.2019.1628806
- 688 15. Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A.
 689 (2006). Loneliness as a specific risk factor for depressive symptoms: cross-
 690 sectional and longitudinal analyses. *Psychology & Aging*, 21, 140–151.
- 691 16. Carlson, J., Chemtob, C. M., Rusnak, K., Hedlund, N. L., & Muraoka, M. Y.
 692 (1998). Eye movement desensitization and reprocessing (EDMR) treatment for
 693 combat-related posttraumatic stress disorder. *Journal of Traumatic Stress*, 11(1),
 694 3–32.
- 695 17. Cooper, L., Caddick, N., Godier, L., Cooper, A., & Fossey, M. (2018).
 696 Transition from the military into civilian life: An exploration of cultural
 697 competence. *Armed Forces & Society*, 44(1), 156-177.
 698 doi:10.1177/0095327X16675965
- 699 18. Crowe, T. K., Sánchez, V., Howard, A., Western, B. & Barger,
 700 S. (2018) Veterans transitioning from isolation to integration: a look at
 701 veteran/service dog partnerships. *Disability and Rehabilitation*, 40, 24, 2953-
 702 2961. doi:10.1080/09638288.2017.1363301

- 703 19. Cushing, R. E., Braun, K. L. & Alden, S. (2018). A Qualitative Study Exploring
704 Yoga in Veterans with PTSD Symptoms. *International Journal of Yoga Therapy*,
705 28(1), 63 – 70. doi:10.17761/2018-00020
- 706 20. Galsgaard, A. & Eskelund, K. (2020). An Explorative Clinical Pilot Study Into
707 the Effect of Service Dogs on Chronic Posttraumatic Stress Disorder.
708 *Traumatology*, 26(4), 361–369. doi:10.1037/trm0000278
- 709 21. Ginzburg, K., Ein-Dor, T., & Solomon, Z. (2010). Comorbidity of posttraumatic
710 stress disorder, anxiety and depression: a 20-year longitudinal study of war
711 veterans. *Journal of affective disorders*, 123(1-3), 249-257.
- 712 22. Haveman-Gould, Bradley MHS, PA-C; Newman, Chelsea Post-traumatic stress
713 disorder in veterans, JAAPA: November 2018 - Volume 31 - Issue 11 - p 21-24
714 doi: 10.1097/01.JAA.0000546474.26324.05
- 715 23. Holliday, R., Williams, R., Bird, J., Mullen, K., & Suris, A. (2015). The role of
716 cognitive processing therapy in improving psychosocial functioning, health, and
717 quality of life in veterans with military sexual trauma related posttraumatic stress
718 disorder. *Psychological Services*, 12, 428– 434.
- 719 24. Holt-Lunstad, J., Smith, T. B., Layton, J. B. (2010). Social relationships and
720 mortality risk: a meta-analytic review. *PLoS Medicine*, 7, e1000316.
- 721 25. HM Government (2018). The Strategy for Our Veterans; Valued, Contributing,
722 [Supported. HMSO, London.
- 723 26. Hundt, N. E., Robinson, A., Arney, J., Stanley, M. A. & Cully, J. A. (2015).
724 Veterans' Perspectives on Benefits and Drawbacks of Peer Support for
725 Posttraumatic Stress Disorder. *Military Medicine*, 180(8), 851-6.
726 doi:10.7205/MILMED-D-14-00536
- 727 27. Iversen, A. C., van Staden, L., Hughes, J. H., Browne, T., Hull, L., Hall, J., ... &
728 Fear, N. T. (2009). The prevalence of common mental disorders and PTSD in the
729 UK military: using data from a clinical interview-based study. *BMC*
730 *psychiatry*, 9(1), 1-12.
- 731 28. Johnson, D. R., Fontana, A., Lubin, H., Corn, B., & Rosenheck, R. (2004).
732 Long-term Course of Treatment-Seeking Vietnam Veterans with Posttraumatic
733 Stress Disorder; Mortality, Clinical Condition, and Life Satisfaction. *The Journal*
734 *of Nervous and Mental Disease*, 192(1), 35 – 41.
- 735 29. Johnson, R. A., Albright, D. L., Marzolf, J. R., Bibbo, J. L., Yaglom, H. D.,
736 Crowder, S. M. et al. (2018). Effects of therapeutic horseback riding on post-
737 traumatic stress disorder in military veterans. *Military Medical Research*, 5(3).
738 doi:10.1186/s40779-018-0149-6
- 739 30. Jones, L., Brazel, D., Peskind, E. R., Morelli, T., & Raskind, M. A. (2000).
740 Group Therapy Program for African-American Veterans With Posttraumatic
741 Stress Disorder. *Psychiatric Services*. doi:10.1176/appi.ps.51.9.1177
- 742 31. Judkins, J., Moore, B., Collette, T., Hale, W., Peterson, A. & Morissette, S.
743 (2020). Incidence Rates of Posttraumatic Stress Disorder Over a 17-Year Period
744 in Active Duty Military Service Members: PTSD Incidence Rates in Service
745 Members. *Journal of Traumatic Stress*. 33. 10.1002/jts.22558.
- 746 32. Karstoft K., Armour, C., Andersen, S. B., Bertelsen, M., & Madsen, T. (2015)
747 Community integration after deployment to Afghanistan: a longitudinal

- 748 investigation of Danish soldiers. *Social Psychiatry & Psychiatric Epidemiology*,
749 50(4), 653–660. <https://doi.org/10.1007/s00127-014-0973-2>
- 750 33. Keats, P. A. (2010). Soldiers working internationally: Impacts of masculinity,
751 military culture, and operational stress on cross-cultural adaptation. *International*
752 *Journal for the Advancement of Counselling*, 32, 4, 290-303. Doi:10.1007/s10447-
753 010-9107-z.
- 754 34. Lawrence, K. A., Matthieu, M. M., Robertson-Blackmore, E. (2017).
755 Completion of a Veteran-Focused Civic Service Program Improves Health and
756 Psychosocial Outcomes in Iraq and Afghanistan Veterans With a History of
757 Traumatic Brain Injury. *Journal of Military Medicine*, 182(7),
758 doi:10.7205/milmed-d-16-00150
- 759 35. Lawrence, K. A., Matthieu, M. M. & Robertson-Blackmore, E. (2019). Civic
760 Service as an Intervention to Promote Psychosocial Health and Implications for
761 Mental Health in Post-9/11/01 Era Women Veterans. *Journal of Women's*
762 *Health*, 28(8), doi:10.1089/jwh.2018.7338
- 763 36. Lester, P., Liang, L-J., Milburn, N., Magil, C., Woodward, K., Nash, W., Aralis,
764 H., Sinclair, M., Semaan, A., Klosinski, L., Beardslee, W. & Saltzman, W.
765 (2016). Evaluation of a Family-Centred Preventive Intervention for Military
766 Families: Parent and Longitudinal Outcomes. *Journal of the American Academy*
767 *of Child and Adolescent Psychiatry*, 55, 1, 14-24. doi:10.1016/j.jaac.2015.10.009
- 768 37. Lobban, J., & Murphy, D. (2018). Using art therapy to overcome avoidance in
769 veterans with chronic post-traumatic stress disorder. *International Journal of Art*
770 *Therapy*, 23(3), 99–114. doi.org/10.1080/17454832.2017.1397036
- 771 38. Lobban, J., & Murphy, D. (2020). Military museum collections and art therapy as
772 mental health resources for veterans with PTSD. *International Journal of Art*
773 *Therapy*, 25,4, 172-182, doi: 10.1080/17454832.2020.1845220
- 774 39. Marmar, C.R., Schlenger, W., HennHaase, C., Qian, M., Purchia, E., Li, M.
775 (2015). Course of posttraumatic stress disorder 40 years after the Vietnam War:
776 findings from the National Vietnam Veterans Longitudinal Study. *JAMA*
777 *Psychiatry*, 72: 875–81.
- 778 40. Matthieu, M. M., Lawrence, K. A. & Robertson-Blackmore, E. (2017). The
779 impact of a civic service program on biopsychosocial outcomes of post 9/11 U.S.
780 military veterans. *Journal of Psychiatry Research*, 248, 111 – 116.
781 doi:10.1016/j.psychres.2016.12.028
- 782 41. McFarlane, A. (2014). PTSD and DSM-5: unintended consequences of change.
783 *Lancet Psychiatry*, 1, 246–247.
- 784 42. McGill, G., Wilson, G., Hill, M. & Kiernan, M. (2019). Utilisation of the
785 Principles of the Armed Forces Covenant in NHS Trusts and Clinical
786 Commissioning Groups across England: A freedom of information investigation.
787 *British Medical Journal Open*, 9(1). doi:10.1136/bmjopen-2018-022053.
- 788 43. McLaughlin, K., & Hamilton, A. L. (2019). Exploring the influence of service
789 dogs on participation in daily occupations by veterans with PTSD: A pilot study.
790 *Australian Occupational Therapy Journal*, 66, 648 – 655. doi.org/10.1111/1440-
791 1630.12606
- 792 44. McClelland, H., Evans, J. J., Nowland, R., Ferguson, E. & O'Connor, R. C. (2020).
793 Loneliness as a predictor of suicidal ideation and behaviour: a systematic review

- 794 and meta-analysis of prospective studies. *Journal of Affective Disorders*, 274, 880-
795 896. <https://doi.org/10.1016/j.jad.2020.05.004>
- 796 45. Ministry of Defence. (2021). JSP100: Defence Holistic Transition Policy, Parts 1
797 & 2 Combined: Directive and Guidance.
- 798 46. Ministry of Defence. (2021). Statistics at MOD. Retrieved from URL
799 [https://www.gov.uk/government/organisations/ministry-of-](https://www.gov.uk/government/organisations/ministry-of-defence/about/statistics)
800 [defence/about/statistics](https://www.gov.uk/government/organisations/ministry-of-defence/about/statistics)
- 801 47. Moher D., Liberati A., Tetzlaff J. & Altman, D. G. (2009) PRISMA Group.
802 Preferred reporting items for systematic reviews and meta-analyses: the PRISMA
803 statement. *The Public Library of Science Medicine*.
804 doi:10.1371/journal.pmed.1000097
- 805 48. Murphy, D., Palmer, E., & Busuttill W. (2016). Exploring indices of multiple
806 deprivation within a sample of veterans seeking help for mental health difficulties
807 residing in England. *Journal of Epidemiology and Public Health Reviews*.
808 doi:10.16966/2471-8211.132
- 809 49. National Health Service, England. (2019). Armed Forces Personnel in transition,
810 Integrated Personal Commissioning for Veterans Framework (IPC4V).
- 811 50. National Health Service, Northern England (2020). Trauma Informed
812 Community of Action; Brief evaluation of the community and its use of the
813 Future NHS Platform.
- 814 51. Nevins, R., Finch, S., Hickling, E. J., & Barnett, S. D. (2013). The Saratoga
815 WarHorse project: A case study of the treatment of psychological distress in a
816 veteran of Operation Iraqi Freedom. *Advances in Mind-Body Medicine*, 27, 22–
817 25.
- 818 52. Obenchain, J. V., & Silver, S. M. (1991). Symbolic Recognition: Ceremony in a
819 Treatment of Posttraumatic Stress Disorder. *Journal of Traumatic Stress*, 5(1),
820 37 – 43.
- 821 53. Otter, L. & Currie, J. (2004). A long time getting home: Vietnam Veterans'
822 experiences in a community exercise rehabilitation programme. *Disability and*
823 *Rehabilitation*, 26, 1, 27-34, doi:10.1080/09638280410001645067
- 824 54. Palic, S., & Elklit, A. (2011). Psychosocial treatment of posttraumatic stress
825 disorder in adult refugees: A systematic review of prospective treatment outcome
826 studies and a critique. *Journal of affective disorders*, 131(1-3), 8-23.
- 827 55. Pezzin, L. E., Larson, E. R., Lorber, W., McGinley, E. L., & Dillingham, T. R.
828 (2018). Music-instruction intervention for treatment of post-traumatic stress
829 disorder: a randomized pilot study. *BMC Psychology*, 19(6), 1, 60.
830 doi:10.1186/s40359-018-0274-8
- 831 56. Pietrzak, R. H., Pitts, B. L., Harpaz-Rotem, I., Southwick, S. M., & Whealin, J.
832 M. (2017). Factors protecting against the development of suicidal ideation in
833 military veterans. *World Psychiatry*, 2016, 326-327. doi: 10.1002/wps.20467
- 834 57. Popay, J., Roberts, H., Sowden, A., & Petticrew, M. (2012). Guidance on the
835 conduct of narrative synthesis in systematic reviews. *ESRC Methods Programme*,
836 15, 047–071.
- 837 58. Powers, A., Fani, N., Carter, S., Cross, D., Cloitre, M. & Bradley, B. (2017).
838 Differential predictors of DSM-5 PTSD and ICD-11 complex PTSD among

- 839 African American women. *European Journal of Psychotraumatology*. doi:
840 10.1080/20008198.2017.1338914.
- 841 59. Ragsdale, K. G., Cox, R. D., Finn, P., & Eistles, R. M. (1996). Effectiveness of
842 Short-Term Specialized Inpatient treatment for War-Related Posttraumatic Stress
843 Disorder: A Role for Adventure-Based Counseling and Psychodrama. *Journal of*
844 *Traumatic Stress*, 9(2), 269 – 283. doi:10.1002/jts.2490090209
- 845 60. Royal British Legion. (2014). A UK Household Survey of the Ex-Service
846 Community. London: The Royal British Legion.
- 847 61. Rozanova, J., Noulas, P., Smart, K., Roy, A., Southwick, S. M., Davidson, L. et
848 al. (2015). ‘I’m coming home, tell the world I’m coming home’ The Long
849 Homecoming and Mental Health Treatment of Iraq and Afghanistan War
850 Veterans. *Psychiatric Quarterly*, 87, 3, 427-443. Doi:10.1007/s11126-015-9398-
851 7.
- 852 62. Sayer, N., Orazem, R. J., Noorbaloochi, S., Gravely, A., Frazier, P., Carlson, K.
853 F. et al (2015) Iraq and Afghanistan war veterans with reintegration problems:
854 differences by Veterans Affairs healthcare user status. *Administration and Policy*
855 *in Mental Health and Mental Health Services Research*. 42(4), 493–503.
856 doi:10.1007/s10488-014-0564-2
- 857 63. Shepherd, S., Sherman, D. K., Maclean, A. & Kay, A. (2020). The Challenges of
858 Military Veterans in their transition to the workplace; a call for integrating basic
859 and applied psychological science. *Perspectives on Psychological Science*.
860 doi:10.1177/1745691620953096
- 861 64. Snilstveit, B., Oliver, S., & Vojtkova, M. (2012). Narrative approaches to
862 systematic review and synthesis of evidence for international development policy
863 and practice. *Journal of Developmental Effects*, 409–429.
- 864 65. Solomon, Z., Mikulincer, M. & Hobfoll, S. E. (1986). Effects of social support
865 and battle intensity on loneliness and breakdown during combat. *J Pers Soc*
866 *Psychol*, 51(6):1269-76. doi: 10.1037/0022-3514.51.6.1269
- 867 66. Solomon, Z., Bensimon, M., Greene, T., Horesh, D., and Ein-Dor, T. (2013).
868 Loneliness trajectories: the role of posttraumatic symptoms and social
869 support. *Journal of Loss & Trauma*, 20, 1–21.
870 doi:10.1080/15325024.2013.815055
- 871 67. Sonethavillay, H., Maury, R. V., Hurwitz, J. L., Uvegas, R. L., Akin, J. L., De
872 Coster, J. L. et al. (2018). *Blue Star Families Military Family Lifestyle Survey*
873 *Comprehensive Report*. The Department of Applied Research, The Institute of
874 Veterans and Military Families, Syracuse University, New York, USA.
- 875 68. SSAFA. (2017). [https://www.ssafa.org.uk/latest/41-veteranshave-felt-isolated-](https://www.ssafa.org.uk/latest/41-veteranshave-felt-isolated-research-reveals)
876 [research-reveals](https://www.ssafa.org.uk/latest/41-veteranshave-felt-isolated-research-reveals). September 2021, date last accessed).
- 877 69. Stapleton, M. (2018). Loneliness and Social Isolation in the Armed Forces
878 Community. Royal British Legion, London.
- 879 70. Steenkamp, M. M., Litz, B. T., Hoge, C. W., & Marmar, C. R. (2015).
880 Psychotherapy for military-related ptsd: A review of randomized clinical trials.
881 *JAMA*, 314(5), 489–500.
- 882 71. Stein, J. Y., & Tuval-Mashiach, R. (2014). Loneliness and Isolation in Life-Stories
883 of Israeli Veterans of Combat and Captivity. *Psychological Trauma: Theory,*

- 884 *Research, Practice, and Policy*. Advance online publication.
885 <http://dx.doi.org/10.1037/a0036936>
- 886 72. Stein, J. Y., & Tuval-Mashiach, R. (2015). The Social Construction of Loneliness:
887 An Integrative Conceptualization. *Journal of Constructivist Psychology*, 28, 3,
888 210-227. <http://doi:10.1080/10720537.2014.911129>
- 889 73. Steptoe, A., Shankar, A., Demakakos, P., & Wardle, J. (2013). Social isolation,
890 loneliness, and all-cause mortality in older men and women. *Proceedings of the*
891 *National Academy of Sciences of the USA*, 110, 5797–5801.
- 892 74. Stevelink, S., Jones, M., Hull, L., Pernet, D., MacCrimmon, S., Goodwin, L. et al.
893 (2018). Mental health outcomes at the end of the British involvement in the Iraq
894 and Afghanistan conflicts: a cohort study. *British Journal of Psychiatry*, 0, 1–8.
895 [doi:10.1192/bjp.2018.175](https://doi.org/10.1192/bjp.2018.175)
- 896 75. Trahan, L. H., Carges, E., Stanley, M. A. & Evans-Hudnall, G. (2016).
897 Decreasing PTSD and Depression Symptom Barriers to Weight Loss Using an
898 Integrated CBT Approach. *Sage Journals*. [doi:10.1177/1534650116637918](https://doi.org/10.1177/1534650116637918)
- 899 76. Van Ommeren, M., Sharma, B., Sharma, G. K., Komproe, I., Cardeña, E., & de
900 Jong, J. T. (2002). The relationship between somatic and PTSD symptoms
901 among Bhutanese refugee torture survivors: examination of comorbidity with
902 anxiety and depression. *Journal of Traumatic Stress: Official Publication of The*
903 *International Society for Traumatic Stress Studies*, 15(5), 415-421.
- 904 77. Veeninga, A. & Hafkenscheid, A. J. P. M. (2004). Expectations of patients
905 starting psychotherapy: Predictors of drop-out?. *Tijdschrift voor*
906 *Psychotherapie*, 30, 187–195.
- 907 78. Walton, C. G., Shultz, C. M., Beck, C. M., & Walls, R. C. (1991). Psychological
908 correlates of loneliness in the older adult. *Archives of Psychiatric Nursing*, 5, 165–
909 170.
- 910 79. Weiss, B. J., Azevedo, K., Webb, K., Gimeno, J. & Cloitre, M. (2018).
911 Telemental Health Delivery of Skills Training in Affective and Interpersonal
912 Regulation (STAIR) for Rural Women Veterans Who Have Experienced
913 Military Sexual Trauma. *Journal of Traumatic Stress*, 31(4).
914 [doi:10.1002/jts.22305](https://doi.org/10.1002/jts.22305)
- 915 80. Whealin, J. M., Yoneda, A. C., Nelson, D., Hilmes, T. S., Kawasaki, M. M. &
916 Yan, O. H. (2017). A Culturally Adapted Family Intervention for Rural Pacific
917 Island Veterans with PTSD. *Journal of Psychiatric Services*, 14(3), 295-306.
918 [Doi:10.1037/ser0000186](https://doi.org/10.1037/ser0000186)
- 919 81. Wilson, G., Hill, M. & Kiernan, M. (2018). Loneliness and Social Isolation of
920 Military Veterans: Systematic narrative review. *Occupational Medicine*, 68(9),
921 600-609.
- 922 82. Wilson, G., Leslie, C., McGill, G. & Kiernan, M. (2020). Understanding the
923 unique factors of Social Isolation and Loneliness of Military Veterans: A Delphi
924 Study. Northumbria University.
- 925 83. Woodward, R., Jenkins, N. K. (2011). Military identities in the situated accounts
926 of British military personnel. *Sociology*, 2011, 45, 252–268.
- 927 84. World Health Organization (2020). International statistical classification of
928 diseases and related health problems (11th ed.).

- 929 85. Yael, D. & Yager, J. (2019). Addressing Loneliness in Complex PTSD. *The*
930 *Journal of Nervous and Mental Disease*, 207, 6, 433-439.
931 doi:10.1097/NMD.0000000000000992.
- 932 86. Ypsilanti, A., Gettings, R., Lazuras, L., Robson, A., Powell, P. & Overton,. (2020).
933 Self-Disgust Is Associated With Loneliness, Mental Health Difficulties, and
934 Eye-Gaze Avoidance in War Veterans With PTSD. *Frontiers in Psychology*, 11.
935 doi;10.3389/fpsyg.2020.559883

936

937

938

939

940

941

942

943

944

In review

Table 2. Systematic search strategy

Source	ASSIA ETHOS PsycARTICLES Science Direct Freedom Collection Scopus Web of Science
Search field	Title and abstract
Exclusion	Non-English language Literature reviews
Year of publication	All years
Search Terms	(Veteran OR ex-servic* OR ex-forc* OR ex-militar*) AND (social isolation OR lonel*) AND (post traumatic stress OR post traumatic stress disorder OR PTSD OR trauma*)

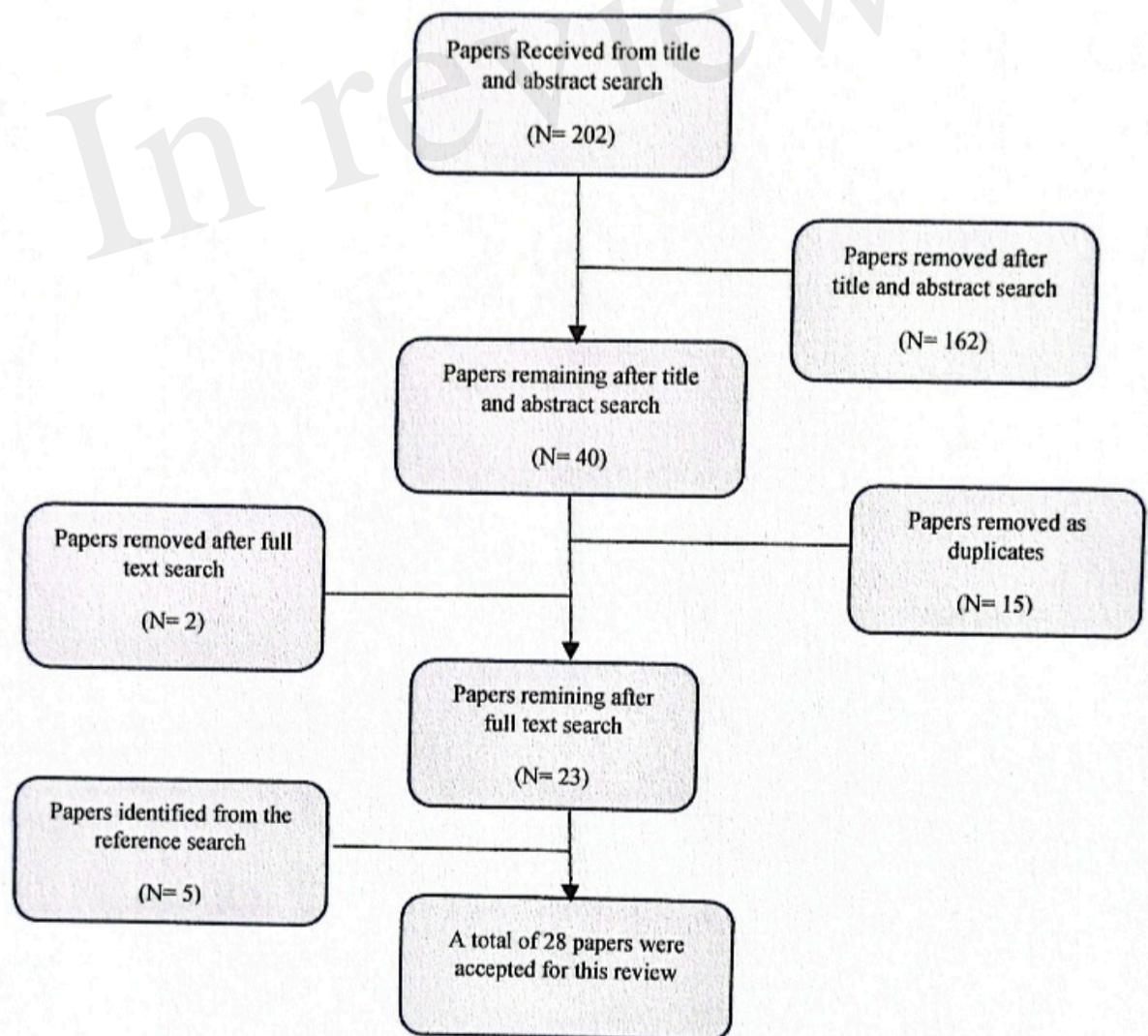


Figure 1. Search strategy used within the systematic search.

Table 1. Symptom capture and limitations on existing PTSD criterion

Symptoms captured by existing PTSD criterion (ICD-11/DSM 5)	Symptoms not captured by existing PTSD criterion (ICD-11/DSM 5)
<ul style="list-style-type: none"> ○ Fear ○ Re-experiencing ○ Avoidance behaviour ○ Hypervigilance ○ Horror ○ Helplessness ○ Challenge to physical integrity ○ Psychogenic amnesia ○ Reduced affect ○ Dissociation ○ Anger ○ Impact on functioning ○ Self-blame ○ Self-destructiveness ○ Alterations in world view 	<ul style="list-style-type: none"> ○ Depression ○ Guilt ○ Shame ○ Psychosexual difficulties ○ Betrayal ○ Stigmatisation ○ Self-medicating activity ○ Increased vulnerability to re-traumatisation