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Self-Compassion and Veteran's Health: A Scoping Review

RESEARCH

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ABSTRACT

There is evidence to suggest that self-compassion is related to positive health and wellbeing outcomes, therefore, this paper explores this concept within the military veteran population. The aim of this review was to identify research and explore the evidence-based of self-compassion as a protective factor, from negative health outcomes, amongst military veterans. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guided the undertaking and reporting of this review. Databases (CINAHL, EBSCO, MEDLINE, PsycInfo, SocINDEX, Web of Science), manual searches of grey literature, websites, and reference lists of retrieved articles, were explored to identify peer-reviewed English language studies published from 2000 to 2019. Searches included any study that measured self-compassion or involved self-compassion education/training. A narrative synthesis was utilized. Searches retrieved 89 articles; 17 studies met the inclusion criteria. All studies were conducted in the US and included veterans, with three also including partners. There was heterogeneity between studies' designs, methodologies, and characteristics. Of these studies, 11 examined associated factors, eight measured improvements in health or well-being outcomes, and six reported feasibility and acceptability of self-compassion strategies. Self-compassion seems to be particularly beneficial for veterans who have experienced trauma, suffering from Post-Traumatic Stress Disorder, trauma-related guilt, depression (or at risk of suicide), and for those who have been in combat and deployed. Limited evidence was found for Schizophrenia and alcohol misuse. Self-compassion appears to have a protective role with positive outcomes for mental and physical health in veterans, in particular for trauma-related psychopathology symptoms.

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INTRODUCTION

There appears to be a growing interest in self-compassion and military veterans' health (Forkus et al., 2019a, 2019b). Self-compassion strategies may help veterans to remain healthy and well. Therefore, reviewing current literature will highlight evidence to confirm or refute any health and wellbeing benefits of self-compassion for veterans.

Historically, self-compassion (SC) has been embedded in Buddhist philosophy and meditation, practiced for over 2,500 years. SC has been defined as "being caring and compassionate towards oneself in the face of hardship or perceived inadequacy" (Neff, 2003a, p. 140), and is considered as an adaptive emotional regulation strategy (Forkus et al., 2019a, 2019b; Inwood & Ferrari, 2018; Scoglio et al., 2018). Neff (2003b) described three interrelated elements for SC, those being: self-kindness, common humanity, and mindfulness. Self-kindness involves warmth and an understanding for us when faced with life difficulties and painful experiences, including not being overly critical and judgmental of oneself. Common humanity involves recognizing that life difficulties and painful experiences do not just happen to you but are a shared human experience. Mindfulness involves taking a balanced approach for our negative emotions and neither suppressing or exaggerating these and a willingness to acknowledge our negative emotions with openness and clarity (mindfulness awareness).

In the general population, it is recognized that SC is related to overall health and psychological wellbeing (Dimitra et al., 2020; Inwood and Ferrari, 2018; Wilson et al., 2019), including trauma-related psychopathology (Beaumont et al., 2012; Germer & Neff, 2015; Scoglio et al., 2018; Zeller et al., 2015), and identified as an important therapeutic goal (Galili-Weinstock et al., 2018; Hoffart et al., 2015). MacBeth and Gumley (2012) confirmed that SC is associated with stress and psychopathology, primarily anxiety and depression. These researchers conducted a meta-analysis that showed higher levels of SC were associated with lower levels of mental health (MH) symptoms, with large effect sizes (r = –0.54; 95% CIs [–0.57, –0.51]; z = –34.02; p < .001). A meta-analysis by Wilson et al. (2019) confirmed these results that SC-related therapies are effective in promoting SC and thus reducing psychopathology. These findings provide some empirical evidence for the relevance of SC as an important explanatory factor to understand and improve health, wellbeing, and resilience (Inwood & Ferrari, 2019; MacBeath & Gumley, 2012), yet limitations need to be considered as most of the included studies were cross-sectional and based on non-clinical samples (Wilson et al., 2019).

A systematic review demonstrated that emotional regulation played a significant role in mediating the relationships between SC and MH (Inwood & Ferrari, 2019). It has also been highlighted that when a person has the ability to give themselves SC, they are more likely to have good interpersonal relationships and experience a greater sense of self-worth and happiness (Neff & Beretvas, 2013). There is evidence that when a person has high levels of anxiety, stress, and/or a history of depression, that this is associated with low levels of SC (Neff, 2003a, 2003b; MacBeath & Gumley, 2012). There appears to be some evidence of a similar association between SC and MH problems within the veteran population and this has instigated an interest in how SC can have an impact the health and wellbeing of military veterans (Forkus et al., 2019a, 2019b).

In the United States (US), more than 200,000 service members annually leave military service and they contribute to a population of over 19 million veterans (Veterans Administration [VA], 2018). There are over 40,000 US organizations that provide programs and services to veterans, however, it is not known if these programs address SC (Vogt et al., 2020). Nevertheless, a focus on the importance of selfcare and compassion is encapsulated in all forms of MH therapies (Finnegan et al., 2016).

In Australia, the veteran population is estimated to be over 641,000 (inclusive of those who had served as full-time and as reserves) (Australian Institute of Health and Welfare [AIHW], 2018). In 1995, *The Road Home* (now named *The Repat Foundation*) was established by veterans to promote and improve health and wellbeing and to raise funds for medical research and patient care facilities in Adelaide, Australia. However, recent government reviews have reported a need to better integrate services to support veterans and add more resources in prevention and early intervention to improve veterans' health and wellbeing (National Mental Health Commission, 2017; Senate Foreign Affairs Defence and Trade References Committee, 2017; Van Hoof et al., 2018).

In the United Kingdom (UK) the veteran population is estimated at 2.4M people (Ministry of Defence [MoD], 2019), and is a diverse, heterogeneous group that differ by factors such as age (52% over 75 years of age), gender (89.5% males), trade, and length and type of service (Royal British Legion [RBL], 2014; Ministry of Defence [MoD], 2019). The risk of mental illness appears to be highest in early service leavers (Bergman et al., 2016; Buckman et al., 2013), those with combat experience (Ashcroft, 2014; Ashcroft, 2017; Osório et al., 2017), those evacuated from operational tours due to an injury (Forbes et al., 2011), and reservists (Harvey et al., 2012).

Similarly, in the general population, a major cause of MH disorders (e.g., depression) is related to physical ill health (National Institute for Mental Health, 2019). The link between MH and physical health needs to be

considered (Drake, 2013). For example, anxiety and stress are associated with several cognitive, behavioral, and autonomic symptoms that can make a person feel physically ill (Woods, 2012). Veterans can display a range of physical symptoms that will be associated with MH symptoms and vice versa, such as palpations, headaches, dizziness, restlessness, insomnia, gastric problems, urinary frequency, and muscular tension and pain. Raised cortisol levels can predispose veterans to more severe physical health problems (Nichter et al., 2019).

Additionally, common life stressors, such as relationship (Lindert et al., 2018), family (Finnegan et al., 2010, 2014), or occupational issues (not military specific), (Theorell et al., 2015) can all play a role and contribute to risks of developing poor MH. The utilization of complementary and alternative therapies (such as mind-body interventions, art, or pet therapy) is emerging to work alongside and/or instead of traditional treatments to support and enable people to manage their mental health (Mental Health Foundation [MHF], 2016). There is some evidence to suggest that when these therapies are used alongside standard care, they are effective in reducing MH symptoms and pain (Cushing & Braun, 2018; Horton, 2016; Krause-Parello et al., 2016; Shella, 2018; Uttley et al., 2015). In general, there has been an emphasis on moving away from clinical settings to outdoor activities and virtual environments (MHF, 2016). Recent studies have shown that stressors in veterans and their families may be managed by social prescribing and interventions (mindfulness, sports, horticultural, archaeology activities) that can improve wellbeing and promote help seeking (Cabral et al, 2011; Finnegan, 2014; Wise, 2015). Interestingly, art therapy has been used as a form of integrative care for veterans with trauma-related disorders and injuries, and shows alleviation on persistent symptoms, despite an initial resistance to treatment (Walker et al., 2016).

Despite the challenges, the majority of veterans do not develop Post-Traumatic Stress Disorder (PTSD) or other MH illnesses, yet it remains important to identify and understand the factors that can protect from the risk of negative health outcomes. As shown in studies in the general population (Inwood & Ferrari, 2018; MacBeath & Gumley, 2012; Scoglio et al., 2018; Wilson et al., 2019) and in military recruits (Mantzios, 2014), SC may be a mediating factor worth considering in veterans (Forkus et al., 2019a, 2019b). Strengthening SC could be a valuable component for the treatment of veterans, especially when considering poor help-seeking behavior, avoidance strategies, and qualities such as emotional control and invulnerability (Dahm et al., 2015; Finnegan et al., 2010; Kearney et al., 2013; McAllister et al., 2019).

AIM AND OBJECTIVES

1. The aim of this review was to find SC research undertaken amongst veterans and offer insights on the topic, in order to identify the evidence-base of SC as a protective factor from negative health outcomes among this population.
2. The objectives were to determine the influence of SC on the mental and physical health of veterans and/or the feasibility and acceptability of the use of SC education and training for veterans.

To our knowledge, there is no review that has examined the evidence base for SC amongst veterans and it is envisaged that these findings will provide an overview of the application, benefits, and challenges of improving SC in the veteran community, which will help to inform clinical practice, educational programs, and health and social-care policies.

STUDY DESIGN

Undertaking a scoping review is considered the most appropriate approach when (a) there are no reviews being undertaken on a specific topic, and (b) to gather evidence from studies using a variety of methodologies (Pham et al., 2014). The review was guided by the seven steps Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR; Peters et al., 2020; Tricco et al., 2018).

STEP 1: DEFINE THE RESEARCH QUESTIONS

The mnemonic population, concept, and context (PCC) was used to derive the research questions. The population was veterans, the concept was SC, and the context included any study that included measuring SC or involved SC education and training.

Research Questions. Is there evidence to demonstrate that if a veteran has low levels of SC, this is associated with poor MH and wellbeing? Is there evidence to demonstrate that if a veteran increases levels of SC, this is associated with improved MH? Is there evidence to support that SC education and training for veterans is associated with improved MH, wellbeing, and/or physical health (PH) outcomes?

STEP 2: ELIGIBILITY CRITERIA

The inclusion criteria consisted of any type of study reporting original or secondary data in relation to SC among the veteran population (including systematic reviews,

qualitative, quantitative, and mixed-methods research). No limit was set to the geographical context, however, only studies in the English language and published from 2000 to 2019 were included in the searches. These limits mirrored emergence of major SC studies in the early 21st century (Neff 2003a, 2003b).

STEP 3 AND 4: SEARCH STRATEGY AND THE SEARCHES

To reflect the interdisciplinary aims of the review, the search strategy was developed iteratively using search terms utilized in key words used within published literature. Title and abstracts that included SC and veterans were reviewed and synonyms: "self-compassion" or "self compassion," "self kindness," "self regard," "self worth," "self-appreciation," "self concept," AND "veterans," or "ex-service" or "ex-military," were used to identify text articles for eligibility (see ***Table 1***). In 2019, the authors (MS, LDL) searched six databases (i.e., CINAHL, EBSCO, MEDLINE, PsycInfo, SocINDEX, Web of Science), for peer-reviewed publications. In addition, manual search of a specifically designed website for SC that includes a list of research studies (*https://self-compassion.org/the-research/*) and advanced grey literature (Google/Google Scholar) searches were undertaken, and reference lists of retrieved studies were explored to identify potential additional studies of relevance.

STEP 5 TO 7: SCREENING, SELECTION AND SYNTHESIS

Eighty-three references were initially retrieved, and a bibliographic Excel database was created to store and manage references. An additional six references were then retrieved through manual searches. Following the removal of 39 duplicates, author MS, supported by a senior experienced librarian (MM) who has expertise in database searches for reviews, reviewed the titles and abstracts of 50 studies retrieved from the search to determine eligibility for inclusion. After title and abstract review, 29 potentially relevant articles (33% of all extracted papers) were retrieved and were subject to a round of full-text assessment by two reviewers, MS and LDL. If any disagreement was raised following team discussion, the lead author would make the final decision. From the full-text assessment, 17 articles (19% of all extracted papers) met the review eligibility criteria and were included as data (see ***Figure 1***). This article presents an overview of the reviewed material. Due to the number of studies identified and their heterogeneity (only one was a Randomized Control Trial [RCT], see ***Table 2***), a quantitative synthesis of the findings was not performed. However, a quality assessment of the included studies was conducted (see Supplementary material; Steen & Roberts, 2011). The authors adopted a narrative synthesis, with studies grouped according to their characteristics; a descriptive account and evidence tables were produced on the main identified themes. Research gaps were also identified.

FINDINGS

Summaries of the 17 articles (ranging from 2012 to 2019) included in the review are in ***Table 2***. Of these 17, six studies (35%) were published in 2019, two (12%) in 2018, two in 2016 (12%), three in 2015 (18%), one in 2014, (6%), two

#	FIELD(S)	SEARCH TERM(S) APPLIED TO TITLE (TI) OR ABSTRACT (AB) FIELDS ONLY
1	TI OR AB	("self compassion" OR "Self kindness" OR "Self regard" OR "Self worth" OR "Self appreciation")
2	TI OR AB	(MH "Self Concept") OR (MH "Compassion")
3	TI OR AB	(MH "Self Concept") AND (MH "Compassion")
4	/	S1 OR S2 OR S3
5	TI OR AB	(veteran or ex-service or ex-military)
6	TI OR AB	(MH "Veterans+")
7	/	S5 OR S6
8	/	S4 AND S7
9	LIMIT	to year = 2000–2019
10	LIMIT	to academic journals only
11	/	Exported/duplicates removed

Table 1 Search History.

Note: (CINAHL, EBSCO, MEDLINE, PsycInfo, SocINDEX, Web of Science).

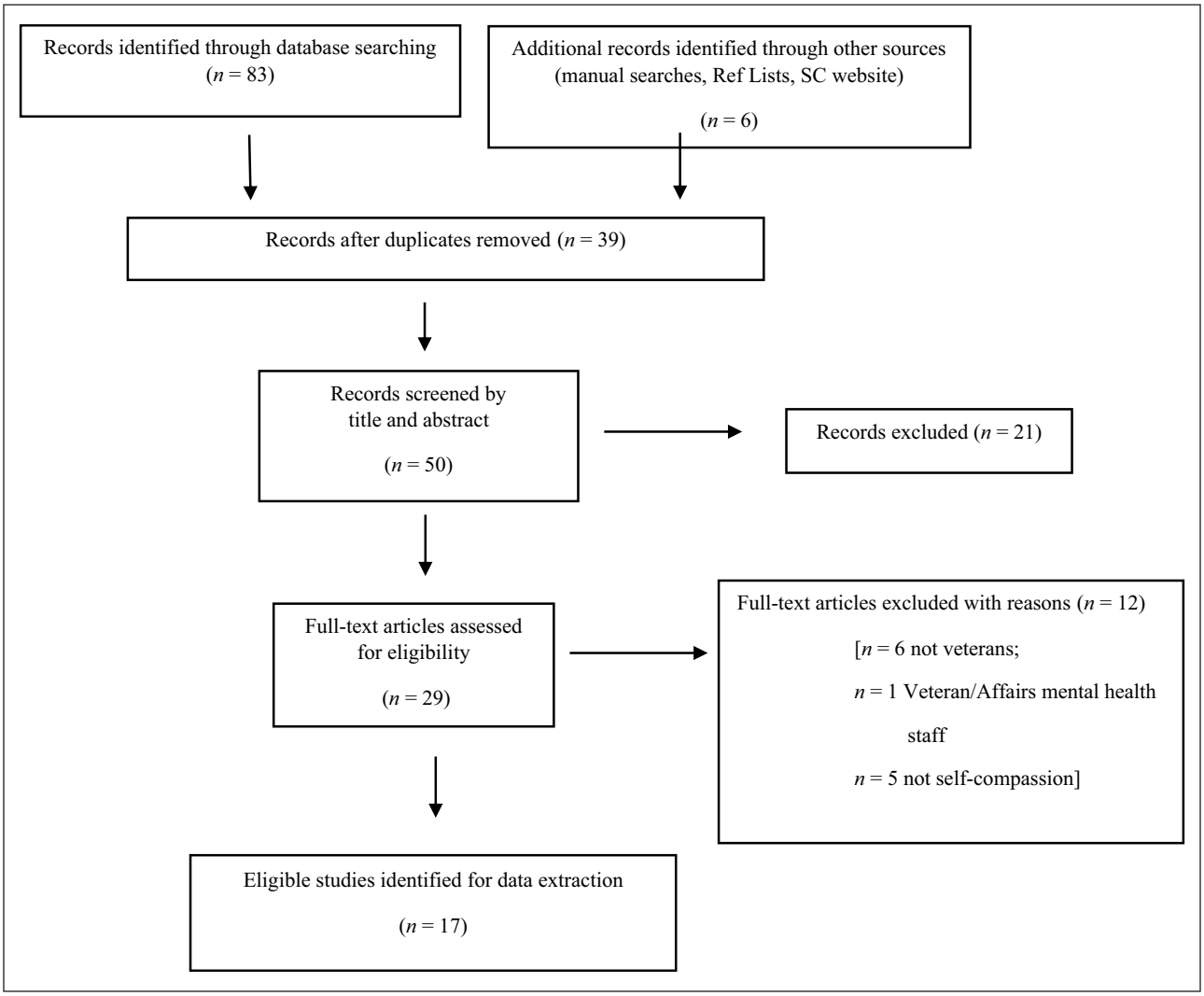

Figure 1 PRISMA Flow Diagram of the Selection of SC Studies Among Veterans.
Note: Adapted from Tricco et al. (2018).

in 2013 (12%), and one in 2012 (6%). The studies were all conducted in the US and included one UK collaboration (Rabon et al., 2019).

There was heterogeneity between the studies' designs and methods. Ten (59%) were cross-sectional/correlational exploratory studies (Bravo et al., 2019; Dahm et al., 2015; Eicher et al., 2013; Forkus et al., 2019a, 2019b; Hiraoka et al., 2015; Kelley et al., 2019; Meyer et al., 2018, 2019; Rabon et al., 2019), five (29%) included a longitudinal component (Hiraoka et al., 2015; Kearney et al., 2013, 2014; Meyer et al., 2018, 2019), four (24%) were pilot studies (Collinge et al., 2012; Held & Owens, 2015; Kerney et al., 2013, 2014), one (6%) was either a RCT (Collinge et al., 2012), a Quasi-Experiment (Berger-Cico et al., 2018), or a case study (Klich, 2016). Additionally, two (12%) studies included qualitative data, either online responses to an open-ended question or focus groups (respectively: Berger-Cico et al., 2018; Collinge et al., 2012).

Five studies (29%) were online studies (Bravo et al., 2019; Forkus et al., 2019a, 2019b; Kelley et al., 2019; Rabon et al., 2019) and four (24%) had an online component (Berger-Cico et al., 2019; Collinge et al., 2012; Held & Owens, 2015; Kahn et al., 2016). Recruitment was mostly via advertisements either online or on study sites. Ten studies (59%) were delivered in the study sites, mostly clinical settings (Berger-Cico et al., 2019; Dahm et al., 2015; Eicher et al., 2013; Hiraoka et al., 2015; Kerney et al., 2013, 2014; Klich, 2016; Meyer et al., 2018; 2019), with the exception of the Held and Owens (2015) study that was delivered in a Veteran Affairs (VA) transitional housing facility. Overall, eight studies (47%) reported training/educational programs or courses delivered to participants within their home (Collinge et al., 2012; Held & Owens 2015; Kahn et al., 2016) or at facilities (Berger-Cico et al., 2019; Kerney et al. 2013, 2014), with Klich (2016) one case study conducted in a clinical treatment session. However, only three studies

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
Bergen-Cico et al. (2018)	USA, NY state, Syracuse.	Mixed method Quasi – experiment.	Veterans with symptoms of PTSD (intervention in the recreation facility for veterans and their families transitioning to civilian life & outdoor). *N* = 48 (34 in the intervention group and 14 in the control group). No significant differences between groups in age or outcome variables. Caucasian = 84% Male = Predominantly (N or % not reported) Age $\bar{x}$ = 41 years in the intervention group and 43 years in the control group. Education = N/A Unemployed/retired = N/A Army = 50% & Marines = 30% Deployments = 80% Post 9/11 veterans & 20% Vietnam War veterans. PTSD = All participants.	To measure the potential impact of a therapeutic dog ownership and training programme for Veterans with PTSD.	Quasi-experimental design with 2 groups. Group 1 = Dog owner-trainer intervention 'Dogs2Vets' (12/18 months, consisting in 90 minutes weekly training sessions), Group 2 = a wait list control. Baseline, 12-months follow-up questionnaires, followed by a qualitative online survey (emailed an opened question: *how did the Dogs2Vets program benefit you?*). SCS Short form (SCS-SF) – 12 items. Participants were Self-referred or referred by Medical centres (Timeline: 2014–2017).	Small size. Generalisation of findings is limited. Self-report measures and only one qualitative question. Some general information (e.g. missing information on reimbursement), demographics and stats are missing/ unclear. Ethical approved study. Participants benefitted from the programme and engaged in trainings, social and physical activity. Dog ownership did not have a negative effect among participants.	✓	✓	✓
Bravo et al. (2019)	USA, Virginia, Chesapeake.	Formative research/ Cross-sectional	Veterans injured in combat members of the Combat Wounded Coalition – a non-profit organisation (Online).	Assess if combat wounded Veterans would be willing to participate to mindfulness-based treatment (in general, or online or at	30 minutes online self-report survey.	Cross-section study, analysing correlations, so causal inferences limited. Some missing data (including demographics)	×	×	✓

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
			N = 163 Caucasian = 74% Male = 96% Age $\bar{x}$ = 46 years Education: College or over = 74% Unemployed/retired = 48% Army = 45% Deployments = 78% PTSD = 51%	the VA) to help them cope with emotional and physical discomfort. Additionally, the study explores several variables (e.g. SC, social support, current MH, prior MH care, etc.) that could predict willingness.	Recruitment via e-mail to members. SCS-SF – 12 items.	and un-clarity (e.g. how many participants would practice mindfulness). Generalisation of findings is limited. Data gathered from a self-reported questionnaire, responses not validated against official records or clinical diagnoses. Participants offered a $10 Amazon gift card (61.8% opted for the gift card). Compensation values participants time and effort, but may also influence responses/ participation. Study approved by the board. Options on how to receive mindfulness treatment showed flexibility of the study and met individual/personal choices.			
Collinge et al. (2012)	USA, Vermont, Burlington, and Oregon, Eugene.	Phase 1 feasibility pilot study. Mixed methods.	Dyads: National Guard Veterans & partners (Home).	To develop and evaluate "Mission Reconnect" (MR)	Repeated self-report measures and qualitative data.	Small sample size. Generalisation of findings is limited. Lack of control group.	×	✓	✓

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
			N = 41 Caucasian = 90% Dyads: Male & Female = 93% & 95% Age $\bar{x}$ Veteran = 34 years Age $\bar{x}$ partner = 29 years Education: College or over = 71% Unemployed/retired = N/A Army = N/A Deployments = 100% PTSD = at risk (%N/A)	an 8 weeks self-directed programme of integrative therapies to support reintegration, well-being and resilience Post-Deployment.	Monthly online questionnaires and Weekly reports during the programme. Two 90 minutes' follow-up focus groups at the end of the programme. Compassion Love Scale – Close to Other version 21 items and the SCS – 26 items.	Some missing data and un-clarity (including demographics). Data gathered from a self-report measures. The frequency of use of the intervention (frequently or infrequently) was not controlled for. Due to external circumstances (deployment) some dyads had to postpone participating during the 8 weeks. Participants were compensated with $20 for weekly report and $50 attendance at focus group interviews (this may influence their answers and their continual participation, however it also values participants, time and effort). Study approved by the board. Flexibility of the study to the participant needs (use of the intervention as much as they liked/ needed).			

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						The use of the intervention at home, that avoided travelling efforts/ cost and reduces exposure to MH stigma (oneself as in need of MH care). The involvement of partners not only veterans, which may have increased adherence.			
Dahm et al.(2015)	USA, Texas, Waco and North Carolina, Durham.	Cross-Sectional and correlational study	Veterans that were deployed to Iraq or Afghanistan and who had been exposed to one or more traumatic events (Healthcare centre). *N* = 115 Caucasian = 57% Male = 83% Age $\bar{x}$ = 37 years Education = N/A Unemployed/retired = N/A Army = N/A Deployments = N/A PTSD = 42%	Examine the association of mindfulness and self-compassion with PTSD symptom severity and functional disability.	Structural clinical interview (conducted by professionals) and Self-report questionnaires. Recruited via staff, advertisement in sites and direct mailing. SCS – 26 items.	Cross-section study, analysing correlations, so causal inferences limited. Generalisation of findings is limited. Some missing data (including demographics). Data gathered from self-report measures. SC as a broader construct – included mindfulness as a core element. Financial compensation values participants, time and effort but may also influence responses/ participation. Study approved by the VA healthcare board.	✓	×	×

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
Eicher et al. (2013)	USA, Indianapolis, Indiana.	Cross-Sectional study	Participants that had a confirmed diagnosis of Schizophrenia or a Schizoaffective disorder and were in a stable phase of the illness and were enrolled in another study in a Midwestern VA medical centre on metacognition (VA medical centre or community mental health). *N* = 88 (Part recruited from a VA medical centre) Caucasian = 47% (African American = 52%) Male = 86% Age $\bar{x}$ = 50 years Education = (level) 13 years Unemployed/retired = N/A Army = N/A Deployments = N/A PTSD = N/A Schizophrenia = 58% Schizoaffective disorder = 42% Lifetime Hospitalization = 8 (with the first occurring at the average age of 27)	Explore the relationship between self-compassion and symptoms and insights in individuals with schizophrenia.	Clinical diagnostic interview (conducted by professionals), followed by the verification of their diagnosis, a screening questionnaire and the administration of symptoms interviews and neuro-cognitive and self-report questionnaires (by trained researchers). Recruited via another study in a Midwestern VA medical centre or community mental health. SCS – 26 items.	Cross-section study, so causal inferences limited. Generalisation of findings is limited. Some missing data (including demographic and military details, such as on how many participants were veterans). Data gathered from self-report measures. Social desirability issues. Financial compensation information was missing. Study approved by the institutional board.	✓	✓	×

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
Forkus et al. (2019a)	USA, New Jersey (RI). However, been an Amazon survey could include data from different states	Cross-Sectional and correlational study	Veterans that were deployed to Iraq or Afghanistan (Online). *N* = 203 Caucasian = 74% Male = 77% Age $\bar{x}$ = 35 years Education = N/A Unemployed/retired = N/A Army = 52% Deployments = N/A PTSD = at risk (%N/A)	Examine the relationship between morally injurious experiences and mental (i.e., PTSD, Depression) and behavioural (i.e., Alcohol, Drugs, DSH) health outcomes, and the potential protective moderating role of SC in this relationship.	Amazon MTurk platform – Online Questionnaires. Recruitment via Amazon advertising. SCS – 26 items.	Cross-section study, analysing correlations, so causal inferences limited. Generalisation of findings is limited. Some missing data (including demographics). Data gathered from self-report measures. Unclear, whether participants most stressful deployment-related experience recorded was related to morally injurious event. More research needed, self-compassion may not have the same protective role for behavioural health outcomes. Prospective and longitudinal studies may show a better understanding of these outcomes. Compensation ($2.00 for participation) values participants time and effort, but may also influence responses. Study approved by the board.	✓	×	×

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
Forkus et al. (2019b)	USA, New Jersey (RI). However, been an Amazon survey could include data from different states.	Cross-Sectional and correlational study (Part of Forkus et al., 2019a)	Veterans that were deployed to Iraq or Afghanistan (Online). *N* = 203 Caucasian = 72% Male = 77% Age $\bar{x}$ = 35 years Education = N/A Unemployed/retired = N/A Army = 52% Deployments = N/A PTSD = at risk (%N/A)	Examine whether SC and fear of SC, separately mediated the association between PTSD and Alcohol, in Veterans.	Amazon MTurk platform – Online Questionnaires. Recruitment via Amazon advertising. SCS – 26 items and Fear of SC – 15 items.	See above strengths/ limitations details for the Forkus et al., 2019a study. First study to examine SC and fear of SC in relation to PTSD and alcohol misuse. Study approved by the board.	✓	×	×
Held and Owens (2015)	USA, South-eastern regions. Tennessee and Missouri, St. Louis.	Pilot study (with 2 randomised groups)	Homeless male veterans with a six-grade reading level, living in housing facilities – Volunteers (Transitional housing facilities). *N* = 27 (13 in the SC training group and 14 in the Stress Inoculation group) Caucasian = 81% Male = 77% Age $\bar{x}$ = 51 years Education: College or over = 45% Unemployed = 78% Army = 56% Deployments = 49% PTSD = at risk (%N/A) Alcohol misuse = 67%	Examine the effects of a 4 week self-administered SC training on trauma-related guilt and PTSD (using a workbook) compared to a Stress Inoculation group.	Training intervention – randomised to either the SC training or the Stress Inoculation group. Pre-, mid-, and post-intervention assessments. Recruitment via advertisement on site. SCS – 26 items.	Small sample size. Generalisation of findings is limited. Lack of a control group. The SC group lacked a true mindfulness exercise (even though mindfulness is considered one of the three core elements of SC), this may have had an impact on the overall results. Self-report measures. Significant withdrawal (43% of sample) and reasons for not continuing were	×	✓	×

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						not properly recorded (yet some participants left the transitional housing facilities). Provides limited evidence. Highly probable participants were receiving other therapies/services and/or medication and this was not recorded and may have confounded the results. Other confounding variables is that participants were allowed to miss 3-hour meetings in their transitional houses (reasons and frequency were not recorded). Difficult to determine if findings can be attributed to completing workbook. In addition, even though research assistants checked if exercises in workbook where completed, no way of confirming if participants practiced exercises as instructed.			

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						Compensation ($20 gift card if they signed up to study) values participants time and effort, but may also influence responses. Study approved by the University board. First study to examine SC in homeless veterans.			
Hiraoka et al. (2015)	USA, Central Texas, Waco and North Carolina, Durham.	Correlational and Longitudinal	VA Registered Veterans that were deployed to Iraq or Afghanistan and who had been exposed to one or more traumatic events during deployment, meeting the DSM-IV-R criterion-A for PTSD (Veterans Healthcare centre). *N* = 115 Caucasian = 57% Male = 83% Age $\bar{x}$ = 35 years Education = N/A Unemployed/retired = N/A Army = 86% Deployments = N/A PTSD = 42%	To examine the concurrent and prospective associations between SC and PTSD symptom severity, after accounting for level of combat exposure. To explore the relationships between SC and aspects of combat exposure, and trauma-related guilt.	Semi structured clinical interview conducted by professionals and self-report and retrospective measures. All were conducted at baseline and at 12 months' follow-up. Recruited through direct mailing, advertising at enrolment sites, and clinical staff. SCS – 26 items.	Generalisation of findings is limited. Some missing data/information (including demographics and compensation). Data gathered from self-report measures. Another limitation is that the impact of treatment via the VA healthcare for PTSD during the study is unknown and may have influence follow up findings. Depression symptoms were not measured (although there are similarities with some symptoms).	✓	×	×

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						Strengths of this study is the longitudinal component (the opportunity to exam impact of SC on PTSD symptoms over time) and the consideration of combat exposure. Validated tools used for measures. Study approved by the board. Further research required on the role of SC for treatment of PTSD is required (e.g., risk samples, determine the extent to which low SC may represent a risk factor).			
Kahn et al. (2016)	USA, 4 regions: California, Texas, North Carolina, New York.	RCT (Phase 2 of the Collinge et al., 2012 study).	Dyads of Veteran-Partners, in which the veteran had a history of deployment in a post-9/11 combat operation. Most were Iraq and Afghanistan Veterans of America Members (MR – home). *N* = 160 dyads (40 participants each group: 181 veterans and 139 partners), 21 dyads were both veterans	16 weeks "Mission Reconnect" (MR) self-directed programme evaluation of use, satisfaction and effects on mental health outcomes and pain levels, associated with post-deployment readjustment.	4 randomised groups: (1) MR alone, (2) MR+PREP, (3) PREP alone, (4) waitlist control. PREP – was the evidence-based comparator programme.	MR is a programme/ resource for users not using formal services (see previous study: Collinge et al., 2012). Generalisation of findings is limited. Lack of enquiry about prior use of mediation, complementary or alternative therapies. No	×	✓	✓

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
			Caucasian = 50% Male Veterans = 81% Female Partners = 93% Age $\bar{x}$ = N/A Education: College or over = 82% Unemployed/retired = N/A Army = 56% Deployments = 100% PTSD = 29% of the Veterans	Explanatory data on the presence of Moral injury.	Web-based application, followed by a telephone interview and an introductory meeting. 3 times survey measurements at the launch meeting, at 8 weeks and at 16 weeks and 8 weekly reports in the first weeks. The MR groups: Web-based app & message practice. The PREP groups – attended a 3 days' retreat with PREP trained professionals. Recruitment via Iraq and Afghanistan Veterans of America website, social media, targeted emails in four metropolitan areas. SCS – 26 items.	inclusion or exclusion criteria for specific MH or physical problems, or on single veterans, so this needs to be assessed in further research. Study may have excluded potential participants who could not attend in-person launch meeting. Program videos and audio instructions did not include captions or transcripts, and would exclude veterans with hearing problems, this needs to be considered in future research. Longer follow up (i.e., 12 months) may show continued benefits for well-being. Conflict of interest (MR programme is owned and distributed by Mission Reconnect LLC, founded by Dr Kahn and Dr Collinge to make the programme widely available).			

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						Received a pre-load debit card for compensation, which values participants time and effort, but may also influence responses. Card automatically funded via the data collection website when reports and surveys were submitted ($40 for each survey, $20 after each weekly report). Strengths of this study is the RCT design. Study approved by the board. Partner relationship may enhance sustained use of self-directed interventions.			
Kelley et al. (2019)	USA, Virginia, Norfolk.	Explanatory/ Cross-Sectional (Sub-study of Bravo et al., 2019).	Combat wound Veterans, experiencing one or more deployment – members of the Combat Wounded Coalition (online).	Examine moderators of associations between self- and other-directed moral injury (inner conflict between beliefs/values) and suicidality.	Study analysing models. Online survey – see Bravo et al. (2019). Recruitment via announcements from the Combat Wounded Coalition members. SCS-SF – 12 items.	See strengths/ limitations from Bravo et al. (2019) study. Cross-section study, so causal inferences limited. Generalisation of findings is limited (e.g. willingness to remember and report moral injury	✓	×	×

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
			N = 189 Caucasian = 74% Male = 97% Age $\bar{x}$ = 43 years Living in Virginia (12%) or Texas (15%) Education = N/A Unemployed/retired = N/A Army = 46% & Marines = 25% Deployments = 86% (90 days or more) PTSD = 29% of the Veterans Service-connected disability = 93% Received a purple heart = 86%			experiences and suicidality). Other variables and MH illness are not examined and may contribute to suicidality. Further research is needed to better clarify association between SC elements, moral injury and suicidality, with other validated tools. Study was approved by the board. Compensation ($10 amazon gift card for completing the study) values participants time and effort, but may also influence responses. Despite this, the study expends the understanding on risks and protective factors related to moral injury and suicidality.			
Kerney et al. (2013)	USA, Washington, Seattle.	Pilot longitudinal study (non-randomised design).	Veterans with PTSD (large urban VA hospital and home). *N* = 42	Examine the feasibility and effects of a loving-kindness meditation course for Veterans with	12-weeks loving-kindness meditation course (a practice to enhance feelings of kindness and compassion) as adjunct to usual care.	Small sample. Generalisation of findings is limited. No control group, which precludes a causal association between	✓	✓	✓

(Contd.)

CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
			Caucasian = 83% Male = 58% Age $\bar{x}$ = 54 years Education: College or over = 62% Christian = 60% Unemployed/retired = 67% Army = N/A Deployments = N/A PTSD = 100% Housing = own/rent (86%), homeless (7%) In a committed relation = 38%	PTSD. Examine if SC would mediate symptoms of PTSD and depression.	Self-report measures at baseline, at 12-weeks and at a 3 months' follow-up. Self-referral or referred via a health care provider (only enrolment notes were reviewed prior study acceptance). SCS – 26 items. X2 versions of Compassion Love Scale – 21 items. X1 version Compassion friends/ family. X2 version Compassion humanity in general.	participation in the mediation and changes observed in outcome measures, further research (e.g., RCT) would address this limitation. Self-reported measures. Improvements maybe confounded by regression to the mean, natural history of a disorder and participation in a class rather than specific effects ok Loving-kindness mediation. Selection bias, due to self-referrals. 88% of the participants received other forms of MH care, which could influence the outcomes. The duration of the follow-up was short, longer follow-ups are needed. No structured psychiatric interview or other formal assessment was not performed prior to enrolment in the study. No monetary compensation.			

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						Study approved by the board & VA hospital (registered trial). High compliance indicates good acceptability. More research is needed to explore if Loving-kindness mediation has potential as an adjunct to usual care for veterans with PTSD.			
Kerney et al. (2014)	USA, Washington, Seattle.	Pilot trial longitudinal study (non-randomised design). Sub-study of Kerney et al., 2013.	Veterans with PTSD (large urban VA hospital and home). *N* = 42 Caucasian = 83% Male = 60% (female 40%) Age $\bar{x}$ = 54 years Education: College or over = 62% Christian = 60% Unemployed/retired = 67% Army = N/A Deployments = N/A PTSD = 100% Housing = own/rent (86%), homeless (7%) In a committed relation = 38%	To assess whether participation in a loving-kindness mediation course for veterans with PTSD is associated with improved positive emotions, decentering, and personal resources.	Part of the Kerney et al. (2013) previous pilot study – See details above. 12-weeks course (a practice to enhance feelings of kindness and compassion) as adjunct to usual care. Veterans were assessed at baseline, after the course, and 3 months later (6 months from baseline). Measures were chosen as an initial investigation of the broaden-and-build theory of positive emotions (hypothesizing that enhanced	See strengths/ limitations from Kerney et al. (2013) study. Small study. Generalisation of findings is limited. Lack of control group. Preclude conclusions regarding a causal association between LKM practice and the changes seen overtime. Participants continued to receive usual care from their medical and MH providers during the study. No assessment of temporal changes.	✓	✓	×

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
					positive emotions, attentional broadening, and built personal resources would occur following participation in the course). SCS – 26 items not analysed/reported in the present study, however was measured in the above linked study (see Kerney et al., 2013).	Study approved by the board. Further investigation of the course for veterans with PTSD is warranted.			
Klich (2016)	USA, Georgia.	Case study (Clinical setting)	A Veteran and his wife. *N* = 2 (1 male Veteran and a Female spouse) Caucasian = N/A Age $\bar{x}$ = N/A Education = N/A Unemployed/retired = N/A Army = N/A Deployments = N/A PTSD = N/A	Exploring unique factors and benefits involved in the clinical treatment of SC strategies within a Mindfulness-based Biofeedback treatment protocol.	Mindfulness-based Biofeedback instruments were used for training and developing adaptive coping strategies (e.g., Coherence as a measure of harmonious synchronization among various systems in the body, such as the heart rhythms, respiratory system, and blood pressure).	Case study design limitations. Cannot be generalised. Limited in scope to one individual veteran and his wife and the view of the clinician/author. No compensation (therapy sessions). No mention of study approved by a board. Gives an insight into how the use of SC-based strategies. Involves partner.	×	✓	✓

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
Meyer et al. (2018)	USA, Texas, Waco.	Correlational and Multiphase – parent study (Longitudinal)	Iraq/Afghanistan Veterans registered for healthcare (VA Medical facility) and exposed to one or more potentially traumatic events that met the DSM-IV criteria for PTSD. *N* = 117 (97 in Time 2) Caucasian = 58% Male = 84% Age $\bar{x}$ = 37 years Education = N/A Unemployed/retired = N/A Army = 95% Deployments = 76% (Iraq and Afghanistan) PTSD = 62%	Examining the factors underpinning third wave behavioural interventions and impacting on readjustment following warzone service, and their clinical usage. By firstly modelling relations among proposed mechanisms (e.g. SC, mindfulness and psychological flexibility) of change in clinical practice in third wave behavioural therapies; and secondly testing if these mechanisms predicted QoL accounting for PTSD symptom severity.	Neuropsychiatric interview conducted by professionals followed by several self-report measurements in multiple time-points, at the medical centre. The disability and QoL measures were repeated at 1-year follow-up during an in-person assessment by 83% (*N* = 97 participants at time 2). Correlations followed by factor analysis to model relations and hierarchical regression analysis for the prediction of QoL at Time 2. Recruited via advertisements in enrolment sites clinical staff, and direct mailing. SCS – 26 items	Generalisation of findings is limited. Some missing data (including demographics) and unclear information. Self-report measurement completed at medical centre. Interviewers by Master level technicians or licensed psychologists who completed comprehensive a assessment and training. Comprehensive test of impact on disability and QoL in veterans with PTSD, using multiple time points, and 2 a year a part, while accounting for PTSD. Mini International Neuropsychiatric Interview used to screen for excluded diagnoses of psychotic or bipolar disorders based on DSM-IV, and six validated measurement scales were used (e.g., *DSM-IV* clinical PTSD scale).	✓	×	×

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						Study approved by the board. Participants received financial compensation for participating, which values participants time and effort, but may also influence responses.			
Meyer et al. (2019)	USA, Texas, Waco.	Longitudinal study and empirical correlation analysis (Parent study)	Veterans registered for healthcare with PTSD who were combat deployed post 9/11 and were exposed to one or more traumatic event during their service -Iraq/ Afghanistan war (VA medical facility). *N* = 107 Caucasian = 59% Male = 84% Age $\bar{x}$ = 37 years Education = N/A Unemployed/retired = N/A Army = 86% Deployments = yes (N/A%) PTSD = 64%	Understanding the recovery process and potential intervention targets by examining the factors (i.e. all the contributors of the mindfulness awareness variables: SC, mindfulness and psychological flexibility) associated with change in PTSD symptoms over time, impacting readjustment following warzone service.	Testing models. Clinical interview administered by professionals followed by self-report measures (in private offices in the VA facility) measured at baseline and at 1-year follow-up. Recruited in parent longitudinal study, and via advertisements in enrolment sites clinical staff, and direct mailing. SCS – 26 items.	Generalisation of findings is limited. Constructs of some of the variables have been criticised. Lifetime worst PTSD was assessed retrospectively. No assessment of treatment involvement. Missing data was low. Study was approved by board. Longitudinal aspect is one of the strengths of the study as well as the use of a clinical diagnostic interview to assess PTSD symptom severity across time, as well as the use of other psychometrically measures.	✓	×	×

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
Rabon et al. (2019)	USA, South Carolina, Columbia; Tennessee, Johnson City; North Carolina, Charlotte; Texas, Austin; UK Sheffield.	Cross-Sectional and correlational study	Any USA veteran, fluent in English and with internet access (Online). *N* = 541 Caucasian = 85% Male = 69% Age $\bar{x}$ = 50 years Education = N/A Unemployed/retired = N/A Army = 17% (38% reported been from all branches of the military) Deployments = 68% PTSD = 61%	Examine the relation between SC and suicide risk and the moderating effects of depression, PTSD symptoms, anger, shame, and thwarted interpersonal needs.	Online self-report survey. Recruited via online advertising, invitation to national veterans' organisations and veterans' national social media pages including military-focused pages. SCS Short form (SCS-SF) – 12 items.	The use of cross-sectional data precludes examination of causal relationships. Explanatory power of the model was limited. Generalisation of findings is limited (even if the study controlled for demographic variables). Convenient sample, recruitment online. The study did not assess diagnostic categories, used self-report measures and subclinical symptomology. Future research should focus also on measures that directly focus on trauma, and recommend mixed methodology, prospective, longitudinal studies to investigate and explore risk and protective factors for suicide and the protective role of SC.	✓	×	×

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CITATION	COUNTRY	TYPE OF STUDY	SAMPLE* (SETTING)	AIM	DESIGN, METHOD & SC MEASURES/ EDUCATION	LIMITATIONS STRENGTHS	FINDINGS EXPLORED		
							SC ASSOCIATED WITH FACTORS (E.G., PTSD OR OTHERS)	MH, PH AND WELLBEING POSITIVE OUTCOMES	ACCEPTABILITY
						Compensated with a raffle entry to win an Amazon gift card. This values participants time and effort, but may also influence responses. Institutional Review Board approval. The ability for SC may provide a proactive coping strategy in times of crisis, reducing suicide risk for veterans.			

Table 2 Overview of 17 Studies Included in the Review.

specifically included SC strategies/education (Held & Owen 2015; Kerney et al., 2013; Klich, 2016).

Of the included studies, 16 (94%) used quantitative data, mostly from self-report validated questionnaires, the only exception was Klich's (2016) case study. Seven studies (41%) also embedded some form of clinical interview (Dahm et al., 2015; Eicher et al., 2013; Hiraoka et al., 2015; Kahn et al., 2016; Klich, 2016; Meyers et al., 2018, 2019). To measure SC 11 studies (65%) (Collinge et al., 2012; Dahm et al., 2015; Eicher et al., 2013; Held & Owens, 2015; Hiraoka et al., 2015; Forkus et al., 2019a, 2019b; Kahn et al., 2016; Kerney et al., 2013; Meyers et al., 2018, 2019) used the 26-item Self-Compassion Scale (SCS; Neff, 2003c). Only four studies (24%) (Berger-Cico et al., 2018; Bravo et al., 2012; Kelley et al., 2019; Rabon et al., 2019) used the 12-item version, the SCS Short Form (SCS-SF; Raes et al., 2011). Other additional questionnaires to measure SC were used in three (18%) studies (Collinge et al., 2012; Forkus et al., 2019b; Kerney et al., 2013), and in two studies (123%) SC was not directly measured (Kerney et al., 2014; Klich, 2016).

All study samples included veterans, with three (12%) also including their partners (Collinge et al., 2012; Kahn et al., 2016; Klich, 2016). One study however, had not clearly reported this information (Eicher et al., 2013, see ***Table 2***). Sample sizes varied from two in Klich's (2016) case study to 541 in Rabon et al.'s (2019) cross-sectional study, with 10 studies (59%) having sample sizes greater than 100 participants. All samples were mostly composed of Caucasian middle-aged males. Mean ages ranged from a minimum of 29 years in the Collinge et al. (2012) study to a maximum of 54 years in Kerney et al. (2014) studies. Veterans were mostly ex-Army personnel with related PTSD or trauma exposure. One study focused on individuals with schizophrenia or schizoaffective disorders (Eicher et al., 2013).

Between the analyzed findings categories (i.e., review aim and objectives and research questions) studies were not mutually exclusive. Eleven studies (65%) reported on *mental and physical factors associated with SC* such as PTSD, depression, and disabilities (Bergen-Cico et al., 2018; Dahm et al., 2015; Eicher et al., 2013; Hiraoka et al., 2015; Forkus et al., 2019a, 2019b; Kelley et al., 2019; Kerney et al., 2013, 2014; Meyers et al., 2019; Rabon et al., 2019). Eight studies (47%) measured *improvements in health related and wellbeing* outcomes (Bergen-Cico et al., 2018; Collinge et al., 2012; Eicher et al., 2013; Held & Owens, 2015; Kahn et al., 2016; Kerney et al., 2013, 2014; Klich, 2016). In particular these reflected improvements on SC, for MH, PH, and wellbeing. Six studies (35%) explored *feasibility* in the real world and participant's views on the *acceptability* of SC strategies/education (Bergen-Cico et al., 2018; Bravo et al., 2019; Collinge et al., 2012; Kahn et al., 2016; Kerney et al., 2013; Klich, 2016).

ASSOCIATED FACTORS

In various studies SC was found to be associated with different factors. In 10 studies (59%) as seen in ***Table 3***, SC was in some form negatively correlated to PTSD; in particular, SC mediated changes in PTSD symptoms, such that greater scores in SC were related to fewer symptoms or a decrease in their severity (Bergen-Cico et al., 2018; Dahm et al., 2015; Forkus et al., 2019a, 2019b; Hiraoka et al., 2015; Kerney et al., 2013, 2014; Rabon et al., 2019). Self-compassion (SC) predicted PTSD recovery (Meyer et al., 2019) and reduced related disability (Dahm et al., 2015; Meyer et al., 2018). Whereas, when "fear" of SC was measured as well, this was associated with PTSD symptoms at a 1-year follow-up (Forkus et al., 2019b). Moreover, SC correlated negatively to depression symptoms and severity in three studies (Forkus et al., 2019a, Kerney et al., 2013; Rabon et al., 2019). In two studies SC also negatively correlated with deliberate self-harm (DSH), versatility (Forkus et al., 2019a), and suicidal behavior (Rabon et al., 2019). Whereas only one study found associations with emotional symptoms in individuals with schizophrenia or schizoaffective disorders (Eicher et al., 2013). In Forkus et al. (2019b), alcohol behavior negatively correlated to "fear" of SC. However, alcohol behavior was not associated to SC in Forkus et al.'s (2019a) first study. In two studies SC had also negative associations with morally injurious experiences (Forkus et al., 2019a; Kelley et al., 2019) and related negative emotional feelings such as anger, shame, and distress (Rabon et al., 2019), however these were not found in the Hiraoka et al. (2015) study.

In two studies (Dahm et al., 2015; Meyer et al., 2018) SC correlated to reduced disability and greater Quality of Life (QoL); whereas social connectedness, or support, emerged to be positively correlated to SC in two studies (Kelley et al., 2019; Kerney et al., 2014).

HEALTH AND WELLBEING OUTCOMES

SC was found to minimize the negative physical and MH outcomes, and to increase overall wellbeing, among both veterans and their partners (Bergen-Cico et al., 2018; Collinge et al., 2012; Eicher et al., 2013; Held & Owens, 2015; Kahn et al., 2016; Kerney et al., 2013, 2014; Klich, 2016). Seven studies (see ***Table 4***), except for Kerney et al.'s (2014) second study and Eicher et al. (2013), showed increases in SC scores and improvements in SC components such as self-judgment (see Bergen-Cico et al., 2018; Kerney et al., 2013).

Improvements in various MH symptoms were reported in all eight studies. In particular, improvements were found for symptoms such as PTSD, depression, anxiety (Bergen-Cico et al., 2018; Collinge et al., 2012; Kahn et al., 2016; Kerney et al., 2013). One study showed that increases in SC reflected decreases in schizoaffective symptoms (Eicher

	CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
		PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
1	Bergen-Cico et al. (2018)	Within the intervention group there was a significant reduction in the scores of the questionnaire measuring PTSD symptoms at follow-up (p = .03). The score decline mean was just below the 5-point change in the scale that is considered threshold for determining whether the intervention had clinical significance. Within the control group there was a moderate increase in PTSD scores, however these changes were no significant. Between group differences showed moderate effect size –.28. The intervention programme significantly predicted changes in PTSD scores at follow-up (p = .01). There were no changes for the control group.	×	×	×	×	×	×
4	Dahm et al. (2015)	Mindfulness and SC were each uniquely, negatively associated with PTSD symptom severity. After accounting for mindfulness, SC accounted for unique variance in PTSD symptom severity ($f2$ = .25; medium ES). The combined association of mindfulness and SC with disability over and above PTSD was large ($f2$ = .41).	After accounting for PTSD symptom severity, mindfulness and SC were each uniquely negatively associated with functional disability. After accounting for mindfulness, SC accounted for unique variance in disability ($f2$ = .13; small ES).	×	×	×	×	×
5	Eicher et al. (2013)	×	×	×	×	×	Higher SC scores were associated with lower scores on the Positive and Negative Psychopathology Syndrome Scale (in the positive, excitement, and emotional	×

(Contd.)

	CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
		PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
							discomfort symptom sub-scales) in addition to poorer insight (self-reflectiveness, self-certainty).	
6	Forkus et al. (2019a)	SC significantly moderated the relationship between exposure to morally injurious experiences and PTSD. Individuals high in SC (vs. low) had significantly fewer of negative MH symptoms after exposure to these events, including fewer PTSD symptoms. Morally injurious experiences were associated with PTSD when participants were low, t _ 10.07, p _ .001, and high, t _ 5.60, p _ .001, in SC, although the latter relation was weaker. The main and interactive associations of morally injurious experiences and SC predicted PTSD.	×	Morally injurious events were significantly negatively related to SC, r _ _.21, p _ .001.	SC significantly moderated the relationship between exposure to morally injurious events and depression severity. Individuals high in SC (vs. low) had significantly fewer of negative MH symptoms after exposure to these events, including fewer depression symptoms. The main and interactive associations of morally injurious experiences and SC also predicted depression.	SC significantly moderated the relationship between exposure to morally injurious experiences and DSH versatility. Individuals high in SC (vs. low) had significantly fewer of negative MH symptoms after exposure to these events, including lower DSH versatility. The main and interactive associations of morally injurious experiences and SC predicted DSH versatility. Morally injurious experiences were associated with DSH versatility when participants were low, t _ 4.14, p _ .001, but not high, t _ .56, p _ .577, in SC.	×	Morally injurious experiences and SC were significant predictors of alcohol and drug misuse. However, the interaction of morally injurious experiences and SC did not predict alcohol or drug misuse.

(Contd.)

	CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
		PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
					Morally injurious experiences were associated with depression when participants were low, t _ 9.18, p _ .001, and high, t _ 4.33, p _ .001, in SC, although the latter relation was weaker	Conversely, morally injurious experiences and SC were significant predictors of DSH history. However, the interaction of morally injurious experiences and SC did not predict DSH history		
7	Forkus et al. (2019b)	Both SC and fear of SC significantly explained the association between PTSD symptoms and alcohol misuse. Furthermore, fear of SC explained this relation after adjusting for levels of SC. Greater PTSD symptoms were associated with greater fears of SC, which was associated with greater alcohol misuse. However, fear of SC explained the PTSD-alcohol misuse, even when controlling for levels of SC, suggesting that fear of self-compassion's role in this relation is distinct and does not simply reflect levels of SC.	×	×	×	×	×	Both SC and fear of SC significantly explained the association between PTSD symptoms and alcohol misuse. Greater PTSD symptoms were associated with greater fears of SC, which was associated with greater alcohol misuse
9	Hiraoka et al. (2015)	SC was negatively associated with associated with each of the three *DSM-IV* PTSD symptom clusters at baseline (after accounting for combat exposure; β = −.59;	×	The overall association between SC and level of combat exposure was not strong as expected based on the literature on moral injury.	×	×	×	×

(Contd.)

	CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
		PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
		$p < .001$; $R2 = .34$; $f2 = .67$; large effect) and at 12-month follow-up (after accounting for combat exposure and baseline PTSD symptoms; $\beta = -.24$; $p = .008$; $R2 = .03$; $f2 = .08$; small effect). SC was negatively associated with trauma-related guilt at baseline and follow-up. Results suggested that SC may influence the degree of chronicity of PTSD symptoms among Iraq and Afghanistan war veterans. As such, increasing SC may be beneficial. Findings also indicate that the association between SC and PTSD is maintained over time, and that SC was not as strongly related to trauma-related guilt.						
11	Kelley et al. (2019)	×	×	Both self- and other-directed moral injury strongly associated with suicidality, and moderately negatively associated with the 3 SC subscales: self-kindness, common humanity and mindfulness. Social connectedness, moderately positively associated with negative SC elements (self-judgment, over-identification). However, the 3 SC subscales did not significantly moderate the self- or other-directed moral injury-suicidality link.	×	×	×	×

(Contd.)

	CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
		PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
12	Kerney et al. (2013)	Change in SC, significantly mediated changes in PTSD symptoms between baseline and post-loving-kindness meditation, and between baseline and the 3 months' follow-up.	×	×	Change in SC mediated changes in depression scores (PROMIS) between baseline and post-loving kindness meditation, and between baseline and the 3 months follow-up.	×	×	×
13	Kerney et al. (2014)	PTSD is linked with negative emotions, significant increases in unactivated pleasant (d = 0.73), but not activated pleasant, emotions were found over time during the loving-kindness mediation course in veterans with PTSD. Activated and unactivated unpleasant emotions decreased over time (d = –.69 and –.53, respectively). There were also increases in environmental mastery (d = .61), personal growth (d = .54), purpose in life (d = .71), self-acceptance (d = .68), and decentering (d = .96) at 3-month follow-up. Also, improvements in social support increased at 3-month follow-up (medium effect size). Thus, overall, positive emotions increased, and enhancement of personal resources occurred over time. Overall, these findings, in combination with the prior 2013 findings (increases in mindfulness and SC along with reductions in PTSD symptoms and depression) following participation in the course provide support for further investigation of LKM as an intervention designed to serve as an adjunct to established interventions.	×	×	×	×	×	×

(Contd.)

	CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
		PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
15	Meyers et al. (2018)	All study variables were moderately correlated with each other (all $p < .01$). PTSD symptom severity at time 1 was a significant predicted of disability at time 2, but not QoL. Overall mindfulness, SC and psychological flexibility, as a single factor (mindful awareness) predicted disability and QoL after accounting for PTSD symptom severity.	Analyses indicated a common factor "mindful awareness" underlay the SCS, and that had stronger relationships to QoL, relative to PTSD. Mindful attitudes factor at time 1 predicted > QoL and < disability at time 2. Increase levels of "Mindful awareness influence levels of disability and QOL over time.	×	×	×	×	×
16	Meyers et al. (2019)	Each construct predicted PTSD recovery when tested individually. When tested simultaneously, SC (but not mindfulness or psychological flexibility) predicted PTSD recovery.	×	×	×	×	×	×
17	Rabon et al. (2019)	SC had a large negative association with the proposed moderating variables of PTSD symptoms, anger, shame, thwarted belongingness, and perceived burdensomeness. We did not find a moderating effect of PTSD on the link between SC and suicide; however, a trend was observed. Contrary to expectations, the link between SC and suicidal ideation did not change significantly as a function of the level of PTSD symptoms, although a review of results indicates significance at moderate-to-high levels of PTSD symptomology.	×	Linkage between SC and suicidal behaviour in the sample was moderated by distress-evoking risk factors, including depression, anger, shame, and thwarted interpersonal needs, such that, as level of risk severity increases the inverse association between SC and suicidal behaviour is strengthened.	SC had a large negative association with the proposed moderating variables of depressive symptoms, anger, shame, thwarted belongingness, and perceived burdensomeness.	SC had a moderate negative association with the outcome of suicidal behaviour. PTS, Depression, Anger, shame, thwarted belongingness, and perceived burdensomeness. had moderate to large positive associations with suicidal behaviour.	×	×

(Contd.)

CITATION	FINDINGS EXPLORED: ASSOCIATED FACTORS						
	PTSD	DISABILITY	MORALLY INJURIOUS EVENTS & RELATED FEELINGS	DEPRESSION	DSH OR SUICIDE	SCHIZOPHRENIA SCHIZOAFFECTIVE DISORDERS	ALCOHOL AND DRUGS
			When examining emotional factors, the interactions between anger and SC (p = .02) and between shame and SC (p = .001) each independently explained a significant increase in the variance explained in suicidal behavior.	When examining psychopathological factors as moderators of the relation between SC and suicidal behavior, the interaction term between SC and depressive symptoms explained a significant increase in the variance in suicidal behavior (p = .00), such that at higher levels of depressive symptoms (above M = 9.28) the beneficial impact of SC on suicidal behavior was enhanced. It appears that when individuals experience significant depressive symptoms such as feelings of sadness, hopelessness, and worthlessness, SC may be of particular utility.	The beneficial effect of SC on suicidal behavior was more salient at higher levels of both anger (above M = 5.01) and shame (above M = 3.95). When examining interpersonal factors, both the interaction between SC and perceived burdensomeness (p = .03) and between SC and thwarted belongingness (p = < .00) explained bsignificant increases in the variance explained in suicidal behavior. Moreover, the positive impact of SC on suicidal behavior became more prominent at higher levels of perceived burdensomeness (above M = 15.38) and thwarted belongingness (above M = 30.50).		

Table 3 Studies Showing Association Between SC and Mental and Physical Health Factors (PTSD, Disability, Morally Injurious Events, Depression, DSH, and Alcohol).

	CITATION	FINDINGS EXPLORED				
		IMPROVEMENTS IN …				EDUCATION AND ACCEPTABILITY
		SELF-COMPASSION	MENTAL HEALTH (MH) (E.G., PTSD DEPRESSION, SCHIZOPHRENIA, ALCOHOL)	PHYSICAL HEALTH (PH) (E.G., PAIN, SLEEP)	WELLBEING (E.G., QOL, STRESS, SOCIAL)	
1	Bergen-Cico et al. (2018)	At follow-up, within the intervention group increases in the overall SC scores were significant ($p = .02$). the strongest changes were in SC and self-judgement. In all outcome variables there were no changes in the control group.	Within the intervention group there was a significant reduction in the scores of the questionnaire measuring PTSD symptoms at follow-up ($p = .03$). The score decline mean was just below the 5-point change in the scale that is considered threshold for determining whether the intervention had clinical significance. Within the control group there was a moderate increase in PTSD scores, however these changes were no significant. Between group differences showed moderate effect size –.28. The intervention programme significantly predicted changes in PTSD scores at follow-up ($p = .01$). There were no changes for the control group. Qualitative data supported and reinforced these quantitative findings, such as the identified themes of improved MH and emotional wellbeing (44%, $N = 14$), PTSD symptoms management (12%, $N = 4$).	×	Within the intervention group there were significant reductions at follow-up for all the outcome measures ($p < .05$): perceived stress ($p = .02$), self-judgement ($p = .01$), isolation ($p = .02$). Between group differences showed moderate effect sizes in all these outcome variables (perceived stress –.60; self-judgement –.90; isolation –.64; SC .37). At follow-up, the intervention programme significantly predicted reductions in perceived stress ($p \leq .00$) and self-judgement scores ($p = .00$), and predicted increases in SC scores ($p \leq .00$). There were no changes in the control group for these outcome variables. However, the intervention did not predict reductions (no main effect) in isolation scores over time. Qualitative data supported and reinforced these quantitative findings. Identified themes were decreased isolation (47%, $N = 14$), improved emotional well-being (44%, $N = 14$), renewed sense of safety and purpose including the opportunity to apply service skills (35%, $N = 12$), increased physical activity (6%, $N = 2$), and unconditional acceptance and companionship.	Acceptability: not directly measured, yet the authors report that of the 64 participants who enrolled in the programme 90% enrolled in the study ($N = 60$; 12 individuals were excluded from analysis due to incomplete data). Of those included in the study all returned the qualitative survey. In the qualitative survey some participants reported a sense of accomplishment, purpose and satisfaction, especially in the application of service skills.
2	Bravo et al. (2019)	×	×	×	×	Acceptability: In general participants were willing to part-take. Especially if they reported use of a VA service for MH (either prior or current).

(Contd.)

	CITATION	FINDINGS EXPLORED				
		IMPROVEMENTS IN …				EDUCATION AND ACCEPTABILITY
		SELF-COMPASSION	MENTAL HEALTH (MH) (E.G., PTSD DEPRESSION, SCHIZOPHRENIA, ALCOHOL)	PHYSICAL HEALTH (PH) (E.G., PAIN, SLEEP)	WELLBEING (E.G., QOL, STRESS, SOCIAL)	
						However, participants with higher SC were less willing (they also reported less distress and fewer MH). Whereas, participants with problems in multiple health domains and lower SC were most likely to express interest in treatment (as likely represent a very high need group).
3	Collinge et al. (2012)	Significant improvement in SC measured via the SCS, but not in the Love scale.	Significant reduction in standardised measures of PTSD and depression and in anxiety, especially following massage.	Significant reduction in pain and physical tension, following massage.	Significant longitudinal reduction in irritability and worry, following massage. Couple strengthening.	Acceptability: Dyads showed compliance and fidelity in the recommended utilisation of the activities. Education Participant reported finding the programme useful and beneficial for managing stress, and easy to practice in a variety of setting (e.g., home, work, vehicle).
5	Eicher et al. (2013)	×	Relationships between SC and several factors of the Positive and Negative Syndrome Scale (psychopathology) were found. These included positive symptoms, excitement, and emotional discomfort. As scores on the SCS increased, scores on these symptom scales decreased. An unexpected result was that there appeared to be no relationship between SC and negative symptoms.	×	Analysis of the sub-scales (self-reflectiveness and self-certainty) indicates that those with high self-reflectiveness also have increased self-judgment, isolation, and over-identification. Additional findings highlighted that those with higher awareness of illness also had significantly higher levels of self-judgment, isolation, and over-identification, which supports the idea that individuals may endorse self-stigma.	×
8	Held and Owens (2015)	Overall, levels of SC increased for participants in both groups over the course of 4 weeks training. Although participants' SC	Stress inoculation training appeared to be slightly more effective than the SC workbook. Over the course of the 4-week intervention, veterans' trauma-related guilt cognitions reduced significantly for the entire sample. For participants in the SC	×	×	×

(Contd.)

	CITATION	FINDINGS EXPLORED				
			IMPROVEMENTS IN …			EDUCATION AND ACCEPTABILITY
		SELF-COMPASSION	MENTAL HEALTH (MH) (E.G., PTSD DEPRESSION, SCHIZOPHRENIA, ALCOHOL)	PHYSICAL HEALTH (PH) (E.G., PAIN, SLEEP)	WELLBEING (E.G., QOL, STRESS, SOCIAL)	
		Increased abilities were not greater in the stress inoculation group. SC training was also not inferior to the control intervention. Practicing either SC or deep breathing and other relaxation exercises for 4-weeks d increase SC abilities.	intervention, trauma-related guilt cognitions increased slightly from pre- to mid-intervention. A drastic reduction in trauma-related guilt cognitions was observed between the mid- and post-intervention assessments ($p < .001$, $d = 4.399$). No significant changes in PTSD severity over time were associated with either treatment condition. In only 4 weeks these changes demonstrate the effectiveness of SC as a possible intervention trauma-related guilt or support intervention to existing treatments for PTSD, especially for people who are extremely self-critical.			
10	Kahn et al. (2016)	Significant improvement was seen at 8 and 16 weeks in SC for participants assigned to MR arms.	Significant improvements were seen at 8 and 16 weeks in measures of PTSD, depression, for participants assigned to MR arms. In addition, significant reductions in self-reported levels of anxiety, and depression were associated with use of partner massage.	Significant improvements were seen at 8 and 16 weeks in measures of sleep quality, for participants assigned to MR arms. Additionally, significant reductions in self-reported levels of pain associated with use of partner massage.	Significant improvements were seen at 8 and 16 weeks in measures of perceived stress and resilience, for participants assigned to MR arms. In addition, significant reductions in self-reported levels of tension, and irritability were associated with use of partner massage.	Acceptability: High user-satisfaction rates. Both veterans and partners were able to learn and make sustained use of a range of wellness practices taught in the MR programme. MR usage low but stable (average in the first 8 weeks was of 2.5 hours per week: 17 uses of non-massage practices and 1.4 of massages, modest reduction in the following 16 weeks towards 1hour per week for veterans, whereas a slight increase was found for partners) Education: The use of the MR programme appears to be an accessible, low-cost approach that supports well-being and reduces multiple symptoms among Post-9/11 veterans and their partners. Home-based, self-directed interventions may be of particular service to veterans who are distant from, averse to, or prohibited by schedule from using professional services.

(Contd.)

	CITATION	FINDINGS EXPLORED				
		IMPROVEMENTS IN …				EDUCATION AND ACCEPTABILITY
		SELF-COMPASSION	MENTAL HEALTH (MH) (E.G., PTSD DEPRESSION, SCHIZOPHRENIA, ALCOHOL)	PHYSICAL HEALTH (PH) (E.G., PAIN, SLEEP)	WELLBEING (E.G., QOL, STRESS, SOCIAL)	
						Leveraging the partner relationship may enhance sustained use of self-directed interventions for this population.
12	Kerney et al. (2013)	Compared to baseline, measures obtained after the loving-kindness meditation course demonstrated increased in SC (large effect size) and mindfulness skills (medium to large effect size).	A large effect size was found for reduction in PTSD symptoms 3-months post loving-kindness meditation (d = −0.89), and a medium effect size was found for reduction in depressive symptoms at 3-months follow-up (d = −0.49). Evidence showed that f SC mediated reductions in PTSD symptoms and depression.	×	×	High user acceptability. Compliance (86%) and attendance (74%) was high even if participant were not compensated. Education: Overall the course was seen as safe and acceptable by veterans with PTSD.
13	Kerney et al. (2014)	×	Significant increases in unactivated pleasant (d = 0.73), but not activated pleasant, emotions were found over time. Activated and unactivated unpleasant emotions decreased over time (d = –.69 and –.53, respectively). Overall, positive emotions increased, and enhancement of personal resources occurred over time. These findings, in combination with the prior 2013 findings (increases in mindfulness and SC along with reductions in PTSD symptoms and depression) following participation in the course provide support for further investigation of LKM as an intervention designed to serve as an adjunct to established interventions.	×	There were also increases in environmental mastery (d = .61), personal growth (d = .54), purpose in life (d = .71), self-acceptance (d = .68), and decentering (d= .96) at 3-month follow-up. Also, improvements in social support increased at 3-month follow-up (medium effect size).	×
14	Klich (2016)	Increase in SC components (i.e., reduction of self-deprecation, of self-judgment).	Clinical and user reported notable improvements in hyper-alertness, emotional health for him and others. Reduction of escalation of anger, fear, mood fluctuations, and overall emotional dysregulation and discomfort.	Clinical and user reported notable improvements in hyper-alertness (greater comfort) and physical discomfort such as pain.	Clinical and user reported greater comfort. Reduction of judgment of others (increased tolerance).	Acceptability: Clinician reports an initial resistance to the training. Following that initial resistance, due to explanation, reflection, practice and veteran specific characteristic, the clinician reports a consistent use from both patients.

(Contd.)

CITATION	FINDINGS EXPLORED				
	IMPROVEMENTS IN …				EDUCATION AND ACCEPTABILITY
	SELF-COMPASSION	MENTAL HEALTH (MH) (E.G., PTSD DEPRESSION, SCHIZOPHRENIA, ALCOHOL)	PHYSICAL HEALTH (PH) (E.G., PAIN, SLEEP)	WELLBEING (E.G., QOL, STRESS, SOCIAL)	
					Education: Clinician reports that SC and mindfulness-based strategies can be a powerful adjunct to biofeedback treatment with veterans. They are feasible, useful and successful strategies that can be readily incorporated into biofeedback treatment, without necessitating Complex long-term psychotherapy.

Table 4 Studies Describing Improvements in Mental and Physical Health Outcomes, Wellbeing, Acceptability of SC Education.

et al., 2013). Improvements were also observed in mood fluctuation or emotional dysregulations (Kerney et al., 2014; Klich, 2016) and trauma-related guilt (Held & Owens, 2015). Additionally, SC was found to improve PH in three studies, with improvements in pain, tension, sleep quality, and discomfort reported by participants (Collinge et al., 2012; Kahn et al., 2016; Klich, 2016).

Participants from six studies reported increases in resilience and overall wellbeing. These included improvements in emotional wellbeing, personal growth, acceptance, and increased tolerance for self and others (Bergen-Cico et al., 2018; Kerney et al., 2014; Klich, 2016) and in social relationships (Bergen-Cico et al., 2018; Collinge et al., 2012; Kerney et al., 2014). Reductions in the escalation of anger, in perceived stress, self-judgments, irritability, and worry were also reported (Bergen-Cico et al., 2018; Collinge et al., 2012; Eicher et al., 2013; Kahn et al., 2016). Increases in physical activity were reported in one study (Bergen-Cico et al., 2018).

EDUCATION AND ACCEPTABILITY (*TABLE 4*)

In six studies, SC was reported to be a viable, safe, and low-cost strategy that can be adopted by veterans in a variety of settings and modalities such as: with professionals in clinical practice (Klich, 2016), in groups in specific veteran's facilities (Bergen-Cico et al., 2018), and self-directed in their own homes with the help of online tools (Bravo et al., 2019; Collinge et al., 2012; Kahn et al., 2016; Kerney et al., 2013). Participants reported high user- satisfaction rates (Kahn et al., 2016; Kerney et al., 2013), yet a low but steady use of the online training was measured (Kahn et al., 2016). Participants were highly compliant and willing to partake in the SC programs (Collinge et al., 2012; Kerney et al., 2013), even when they showed initial resistance (Klich, 2016). Participants were especially likely to express interest if they had MH issues or had lower SC (Bravo et al., 2019). Participants reported a sense of satisfaction and accomplishment (Bergen-Cico et al., 2018), and described the program as beneficial for managing stress (Collinge et al., 2012), and as safe and acceptable (Kerney et al., 2013). Additionally, the adoption of partners in studies showed some enhanced sustained use of interventions (Collinge et al., 2012; Kahn et al. 2016; Klich, 2016).

DISCUSSION

The negative impact of mental and physical illness in veterans' life and wellbeing is a major health issue that has been increasingly addressed in the last decade (National Institute for Mental Health, 2019; National Mental Health Commission 2017; Vogt et al., 2020). Complementary and alternative therapies have been utilized more and may be helpful during transition to civilian life for veterans (Furst, 2015; Krause-Parello et al., 2016). Yoga has been reported to improve sleep and cognitive ability and manage anger in veterans (Cushing & Braun, 2018; Horton, 2016) and pet therapy has been shown to lead to a number of health benefits (Crossman et al., 2017; Krause-Parello et al., 2016). A growing number of outdoor group activities have been used (Duvall & Kaplan, 2013) such as horse riding (Johnson et al., 2018), archaeology (Finnegan, 2016), and fly-fishing (Craig et al., 2020). Additionally, during the last decade raised awareness of SC and some strategies that can be developed has been introduced as a specific focus to help veterans to improve and maintain their health and wellbeing (Berger-Cico et al., 2019; Kerney et al., 2013, 2014).

This review clearly demonstrates that there has been an increasing interest in SC in veterans. However, the studies included in this review were all conducted in US and predominately involved Army veterans, most of whom were deployed into Iraq (2003) or Afghanistan (2001) and reported related trauma or PTSD symptoms. The review highlights that SC has an impact upon trauma-related disorders and this is then related to negative emotional feelings (e.g., anger, shame, and distress), Deliberate Self Harm [DSH], and suicidal behavior (Forkus et al., 2019a; Kelley et al., 2019; Rabon et al., 2019). However, there was limited evidence found for schizophrenia or schizoaffective symptoms (Eicher et al., 2013), this is contrary to evidence for civilian population research showing correlations between SC and severe MH (Dimitra et al., 2020). Additionally, contradicting results were reported for alcohol behavior (Forkus et al. 2019a, 2019b). Nevertheless, the protective role of SC in the associations highlighted in this review may suggest that self-compassionate individuals are able to employ more adaptive coping strategies and are potentially more capable of dealing with aversive/uncomfortable experiences (Neff, 2003a, 2003b). This is supported by a US study showing protective effects of SC in self-harming behaviors of veterans suffering of insomnia, by buffering against negative self-evaluations regarding the inability to sleep (Tanner et al., 2018). Therefore, the findings are of relevance as the occurrence of certain MH conditions or risky behaviors among veterans, may be lessened by improvements in SC.

Consistent with prior work in civilians (Inwood & Ferrari, 2019; Wilson et al., 2019), the present review shows that SC appears to offer both MH and PH health benefits, and to increase overall wellbeing among both veterans and their partners (Bergen-Cico et al., 2018; Collinge et al., 2012; Eicher et al., 2013; Held & Owens, 2015; Kahn et al., 2016; Kerney et al., 2013, 2014; Klich, 2016). In line with previous findings improvements were found for disorders such as

PTSD, anxiety, and depression, (Bergen-Cico et al., 2018; Collinge et al., 2012; Kahn et al., 2016; Kerney et al., 2013). Self-compassion (SC) was reported as improving sleep and alleviating pain (Collinge et al., 2012; Kahn et al., 2016; Klich, 2016). Participants in some studies also reported increases in resilience and overall wellbeing (Bergen-Cico et al., 2018; Kerney et al., 2014; Klich, 2016), as well as improved social interactions and relationships (Bergen-Cico et al., 2018; Collinge et al., 2012; Kerney et al., 2014).

These findings highlight the potential of SC in clinical treatments/therapies for veterans and their families (Tanner et al., 2018). Self-compassion (SC) may be particularly beneficial due to its components of self-kindness and a sense of common humanity, which can reduce social isolation and emotional experiences such as guilt, shame, pain, or distress that tend to impede the recovery process. Previous studies have shown that when a person is self-compassionate, they are more inclined to have good interpersonal relationships and experience a greater sense of self-worth and happiness (Neff & Beretvas, 2013).

Some studies explored the acceptability of providing some form of education and training to enable veterans to use SC strategies (Bergen-Cico et al., 2018; Bravo et al., 2019; Collinge et al., 2012; Kahn et al., 2016; Kerney et al., 2013; Klich, 2016). These studies showed the flexibility of SC strategies, with their easy application to a variety of settings and modalities. Moreover, studies reported SC strategies to be viable, safe, and of low-cost showed great interest by participants and high user-satisfaction rates (Bergen-Cico et al., 2018; Collinge et al., 2012; Kahn et al., 2016; Kerney et al., 2013). Interestingly, participants were especially likely to express interest if they had MH issues or had lower SC (Bravo et al., 2019); and veterans who participated with partners in the studies showed greater sustained use of SC strategies (Collinge et al., 2012; Kahn et al., 2016; Klich, 2016). These findings for SC strategies may be of particular interest for MH prevention and disadvantaged sub-groups of veterans (e.g., homeless and unemployed), or for veterans who may lack access to resources and professional help, as an alternative low-cost approach to enhance their mental and physical health and wellbeing (Held & Owens, 2015).

STRENGTHS AND LIMITATIONS

Consistent with civilian research, SC appears to offer health benefits, especially for trauma-related psychopathology. Overall, this review suggests that SC is likely to be beneficial among middle-aged Caucasian male veterans with MH illness (or at heightened risk) especially PTSD, as trauma can result in the formation of more critical self-appraisals due to shifts in beliefs about oneself following the traumatic event (Forkus et al., 2019b). Evidence of a similar protective role was limited in other health outcomes such as schizophrenia and alcohol misuse; however, more research is required.

The adoption of the rigorous step procedure has helped to resolve ambiguity and reduce the risk of biases when undertaking a scoping review (Tricco et al., 2018). As far as the researchers are aware, this review is the first for SC veteran's research and is an important proof of concept, which is necessary to inform and optimize current approaches and provision for veterans and their families' mental health and wellbeing.

Nonetheless, the review findings and interpretations need to consider some limitations. Generalization is limited as all studies were conducted in the US. Additionally, most studies are cross-sectional (correlational), thus limiting interpretation as they cannot infer causation, and this limits the synthesis of the findings. The authors reported in supplementary file a formal quality assessment of the included studies even though this was not a requirement of a scoping review, additionally, a narrative synthesis of the limitations of each study has been included. Some studies were missing information, in those cases the lead author tried to contact three authors of studies for clarifications. Only one author replied from the study conducted by Eicher et al. (2013), (LD) who confirmed that veterans were participants.

More rigorous research including RCTs are required to examine whether SC strategies and their underpinning emotional-regulation mechanism (see Inwood & Ferrari, 2019) are long-lived, or if they are efficacious as stand-alone therapies or can be embedded in current treatments; especially since a recent systematic review for the civilian population has shown that SC-interventions do not have a greater effect than current treatments (Wilson et al., 2019). Finally, more research in other sub-groups is necessary, such as those in active duty, non-treatment seeking veterans, and women veterans (as much evidence is reported for women with trauma in the civilian population; Galili-Weinstock et al., 2018; Hoffart et al., 2015; Miron et al., 2014; Scoglio et al., 2018; Zeller et al., 2015).

CONCLUSIONS

Higher levels of SC appear to be beneficial in veterans as it appears to decrease mental and physical problems, in particular, PTSD. Therefore, educating and training veterans to know what and how SC may help them is worthy of further investigation. This has implications on an international scale.

IMPLICATIONS FOR CLINICAL PRACTICE

Self-compassion (SC) appears to help veterans remain healthy and well and therefore measuring levels of SC is important to consider. Additionally, therapies and education that incorporate SC have begun to show that the capacity for SC can be enhanced as a preventative measure. The review findings show a potential applicability for veterans. Further research needs to be conducted in order to estimate the strengths of these associations and fully evaluate the potential clinical impact.

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COMPETING INTERESTS

The authors have no competing interests to declare.

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