Exercise is medicine for mental health in military veterans

Caddick, Nick; Smith, Brett

DOI:
10.1080/2159676X.2017.1333033

Exercise is medicine for mental health in military veterans: A qualitative commentary

Abstract

Different approaches to treatment for mental health problems in military veterans continue to attract research attention. In addition to the NICE-approved treatments for post-traumatic stress disorder such as trauma-focused cognitive behavioural therapy and eye-movement desensitisation and reprocessing, a number of novel and innovative approaches have recently been developed. One such approach is encapsulated under the emerging paradigm of 'exercise as/is medicine'. Following recent calls to strengthen the evidence base for new and emerging mental health treatments for veterans, this paper presents a commentary on current evidence in support of 'exercise as medicine' derived from qualitative research studies. It is concluded that qualitative research has made a significant contribution to the emerging evidence base for exercise-based interventions. This evidence base can be used to inform current debates about quality assurance in the area of veterans' mental healthcare and to underpin quality provision for service users. Qualitative research also has a significant future contribution to make toward improving the evaluation of novel treatment approaches, generating more impactful research, and increasing the applicability of research findings in 'exercise as/is medicine'. The paper closes with some critical reflections on the role of exercise-based interventions as a means of helping veterans improve their mental health.

Keywords: *Exercise; Medicine; Veterans; Mental Health; PTSD; Qualitative Research*

'Exercise as/is medicine' has become increasingly prominent over the past decade as a philosophy and approach for treating mental health problems in military veterans[1]. This trend toward exercise in veterans' mental healthcare has attracted growing research attention in the form of both qualitative and quantitative studies exploring the impact of exercise on veterans' mental health. Most of the research has focused on the effects of exercise for veterans experiencing post-traumatic stress disorder (PTSD); a severe and often debilitating psychological response to traumatic incidents (e.g., Whitworth & Ciccolo, 2016). Several systematic reviews have collated evidence in support of exercise as a treatment for PTSD in the general population (Rosenbaum et al., 2015), and among veterans specifically (Caddick & Smith, 2014; Whitworth & Ciccolo, 2016). Some studies have also examined the role of exercise in promoting psycho-social elements of recovery among veterans with traumatic injuries and disabilities (e.g., Brittain & Green, 2012; Burke & Utley, 2013; Shirazipour et al., 2017)[2].

In this article, we provide a commentary on the current state of knowledge in the field of mental health, exercise and military veterans. A focus on veterans within the wider 'exercise is medicine' movement is warranted given the specific challenges (e.g., combat trauma, transition from military to civilian lifestyle, stigma of addressing mental health problems in the military) faced by many in this cohort (Cooper et al., 2017). The adoption of a sports-based model of recovery in the related area of military trauma rehabilitation (see, e.g., Messinger 2010; and promoted more widely via the Invictus Games) further highlights

[1] We use the term 'veterans' (as per popular understandings of the term) to refer to former service personnel, whilst also recognising that many currently serving military personnel utilise exercise as a means of dealing with mental health concerns. (For a technical discussion of the term 'veteran' and its different meanings and limitations, see Burdett et al. (2012) and Dandeker et al., 2006).

[2] Whilst important in its own right, this research will not be reviewed within this paper which focuses on exercise as a form of treatment for mental health problems such as PTSD.

the current relevance of exercise, sport and physical activity for addressing military and veteran mental health.

The article is divided into four main sections. First, we review the contribution that qualitative research has made to the evidence base in support of using exercise as 'medicine' for military veterans. In the second section, this evidence base is then situated in the context of current debates about quality assurance in veterans' mental healthcare and the requirement for evidence-based treatments. Here we comment on the role of exercise in augmenting the care veterans receive through traditional clinical pathways, and on the part played by an expanding network of military charities offering exercise-based interventions. In the third section, this article discusses the future contribution that qualitative research can make toward developing the research agenda concerning exercise as medicine and veterans' mental health research more generally. We conclude with some critical reflections on the use of exercise as medicine, including whether the alignment of exercise with 'medicine' is likely to support, or alternatively, to undermine veterans' engagement with it as an approach to bettering their mental health.

Qualitative contributions to understanding "exercise is medicine"

Qualitative researchers have been at the forefront of an emerging body of work exploring the potential of exercise as treatment for mental health in military veterans. This is perhaps due to the capacity of qualitative research to obtain rich and detailed accounts of a topic that has emerged relatively recently and to 'open up' a new area of social scientific study. Whilst not wishing to discount the achievements of quantitative research in contributing to the growing evidence base (e.g., Lundberg et al., 2011; Rogers, Mallinson & Peppers, 2014; Whitworth & Ciccolo, 2016), it is clear that a significant body of qualitative work has begun to develop in

support of exercise in the treatment of mental health problems among veterans (e.g., Caddick, Phoenix & Smith, 2015; Caddick, Smith & Phoenix, 2015a, 2015b; Carless, 2014; Carless & Douglas, 2016a, 2016b; Carless, Sparkes, Douglas & Cooke, 2014; Douglas & Carless, 2015; Dustin, Bricker, Arave & Wall, 2011; Hawkins, Cory & Crowe, 2011; Mowatt & Bennett, 2011; Otter & Currie, 2004). This research has focused on a variety of forms of exercise, sport and/or physical activity, and has revealed numerous ways in which these activities can improve the mental health of veterans and can play a crucial role in treatment for PTSD and other mental health problems. This research also builds on an already established body of qualitative work which documents the positive effects of exercise, sport, and physical activity for people experiencing serious mental illness (e.g., Carless & Douglas, 2010; Faulkner & Biddle, 2001, 2004; Hefferon et al., 2013).

While the qualitative research in this area has not tended to use the term 'exercise is medicine' explicitly, the common thread uniting this body of work is certainly its focus on the capacity of exercise and/or sport and physical activity to improve the mental health of military veterans experiencing PTSD or other mental health problems. In keeping with the theme of this special issue, we use the term 'exercise' throughout this paper to refer to a number of activities that may also include sport, physical activity, and active forms of recreation. While we recognise there may be important distinctions between various types of activity (e.g., competitive vs. recreational sport, 'structured' exercise performed for health reasons vs. 'unstructured' games or recreational activities conducted primarily for pleasure), we have chosen for reasons of consistency to refer to 'exercise'. In addition, we will use the phrase 'exercise-based interventions' to describe the programs or services at the heart of the research we focus on in this paper. Such interventions are typically charity or community-run programs, or services delivered on an ongoing basis, with some form of (usually group-based) exercise or physical activity as the basis of mental health provision. These programs

and charities (e.g., Surf Action, Help for Heroes, the Invictus Games, the Battle Back program) have been at the forefront of the growing use of exercise-based interventions for veterans' mental health.

A number of positive psychological outcomes have so far been identified by qualitative research examining the impact of "exercise as medicine". First is the capacity of exercise to reduce the clinical symptoms associated with PTSD. Consistent with the findings of a recent meta-analysis which demonstrated that physical activity can significantly reduce PTSD symptoms (Rosenbaum et al., 2015), qualitative research has revealed that various forms of exercise can reduce the symptoms of re-experiencing, avoidance and numbing, and hyper-arousal associated with PTSD (Dustin et al., 2011, *kayaking*), reduce anger levels and improve mental alertness and sleep quality (Dustin et al., 2011; Mowatt & Bennett, 2011, *fly fishing*; Otter & Currie, 2004, *aerobic exercise*), and provide a feeling of respite from the exhausting daily cycle of PTSD symptoms (Caddick et al., 2015a, *surfing*). These qualitative findings are not couched in the language of clinical or statistical significance, but instead demonstrate – through veterans' own personal testimonies – the meaningful difference that exercise can make to their experiences of PTSD.

In addition to these symptom-focused findings, qualitative researchers have examined the positive contribution that exercise can make to veterans' lives, including how it might enable them to live purposeful and meaningful lives despite the presence of symptoms. Adopting what Hawkins, Townsend and Garst (2016) describe as a *strengths-based* approach, these findings illustrate the ways in which exercise can *add* to life – in the form of positive experiences – rather than simply what it might take away in the form of problems (Caddick & Smith, 2014; Carless & Douglas, 2010). For example, Carless et al. (2013) described how participating in an adventure training and sports camp ('Battle Back') helped veterans to restore a sense of purpose in life, and reconnected them with other people and with activities

they used to enjoy prior to experiencing trauma but had since ceased to take part in. These authors' qualitative findings also revealed how participating in the week-long camp helped veterans to re-establish aspects of their former selves and identities (e.g., military, masculine), which they valued and which helped them to generate a positive outlook on the future.

Furthermore, our own qualitative research (Caddick, et al., 2015a) demonstrated that exercise in the form of surfing helped veterans to counteract the constant reliving of past traumatic incidents and to experience valuable time "in the present". Similar to mindfulness-based interventions (see e.g., Keng, Smoski & Robbins, 2011; Vujanovic et al., 2011), the goal of which is partially to enable veterans to cultivate an awareness of the present moment, veterans' descriptions of surfing reflected a fulfilling sense of absorption in the activity. For the veterans, there was also a heightened awareness of their ocean surroundings and of the world outside of their own thoughts and bodies which they experienced as intensely pleasurable. In the veterans' words, this combination of physical activity and being immersed in nature was like having PTSD "pummelled out of them" or "washed out of their system". The stories these veterans told of their experiences revealed that surfing played a key part in keeping the 'chaos' of PTSD at bay, and in helping them to manage PTSD better in their daily lives.

Other forms of exercise – such as aerobic exercise classes – have also been linked to improvements in the mental health of military veterans (Otter & Currie, 2004). In Otter and Currie's (2004) grounded theory study of Australian Vietnam veterans taking part in a 40-week community exercise programme, veterans reported an increased sense of motivation as a result of their participation. Exercise was credited with helping the veterans overcome a pervasive lack of motivation associated with PTSD and with injecting energy into their daily lives. For example, these veterans reported feeling motivated to increase the amount of

walking they did and to spend more time participating in enjoyable activities. They also reduced their reliance on medication as a means of managing the symptoms of PTSD and were able to carry out their daily activities with greater energy and enthusiasm.

How does exercise work as medicine for military veterans?

Within the broader field of 'exercise is medicine' research, quantitative and clinically-focused studies have, importantly, identified several possible mechanisms for the beneficial effects of exercise on mental health. These mechanisms include biochemical (e.g., endorphin and monoamine hypotheses) and physiological (e.g., thermogenic, cardiovascular, and sleep improvement hypotheses) changes which may be taking place in the body when people exercise (Craft & Perna, 2004; Robertson et al., 2012). Equally important, we argue, qualitative research has been particularly useful at highlighting the psychological and social *processes* that may lead to improvements in mental health through exercise. For example, qualitative work by Carless and Douglas (see e.g., Carless & Douglas, 2010) has revealed how exercise, sport, and physical activity can enable people with serious mental illness to construct positive new identities based around action and achievement through exercise, rather than identities based around 'being mentally ill'. As these authors demonstrated over the course of several studies and publications, exercise can provide the positive material that people require to re-craft a life story disrupted by chronic mental health problems.

With regard to veterans, several potentially important processes have been identified. Building on their earlier work, Carless and colleagues (see Carless, 2014; Carless et al., 2013) argued that taking part in a sport and adventure training camp helped to facilitate a 'narrative transformation' for injured veterans and veterans diagnosed with PTSD. This transformation was from a place of desolation or chaos (in one participants' words, "I was just nowhere"; Carless, 2014; p. 1444), to one of excitement and optimism about the future, which they

began to perceive as a ‘quest’ or journey (“opened some doorways in my head”; Carless, 2014; p. 1445). The authors argued that this process of transformation in the stories that veterans told about their lives led to positive psychological outcomes such as those identified in the previous section (Carless et al., 2013).

In our study of veterans who went surfing in order to deal with the effects of PTSD, we identified group-level processes which contributed to positive mental health outcomes. One process was the collective challenging of mental health stigma related to PTSD. The prevalence of mental health stigma in the military and its continuing effects in civilian life has been widely reported as a potential barrier to help-seeking (Sharp et al., 2015). For veterans, the residual and continuing influence of a highly masculinised military environment which calls for toughness, stoicism, and self-reliance, and which regards ‘emotional weakness’ with suspicion can lead them to conceal the presence of mental health problems and avoid seeking help (Higate, 2003; Lorber & Garcia, 2010). Conversely, our research showed that surfing provided veterans with a ‘positive’ and ‘proactive’ means of addressing mental health problems which enabled them to overcome some of the negative influence of perceived stigma (Caddick et al., 2015b). Within the group environment of the charity (Surf Action) where the research took place, remaining stoic and silent about PTSD was generally regarded as unhelpful whereas ‘standing up and talking about it’ was seen as worthwhile and masculine. Importantly, surfing was also considered a way of ‘doing something’ proactively to deal with mental health problems rather than, in the words of one veteran, “sucking your thumb, crying into your beer, pissing and moaning about how bad life is” (Caddick et al., 2015b; p. 103). Surfing was thus the central activity around which a group of veterans were able to collectively challenge the stigma that may otherwise have silenced them.

Exercise as a way of bringing people together also facilitated positive mental health outcomes through peer support and relationships (Caddick, Phoenix & Smith, 2015; Carless

et al., 2013). For example, the surfing group facilitated the telling of a 'collective story' by the veterans about coming together and supporting each other their efforts to deal with PTSD. Key elements of this collective story included the rekindling of military relationships in the form of camaraderie, a sense of acceptance and belonging amongst other veterans, feeling understood without having to explain one's problems, a sense that PTSD was 'normalised' and 'legitimatised', and a reciprocal obligation to look after the well-being of other group members. Accordingly, the collective story – facilitated by participation in the surfing group – engendered key elements of traditional therapeutic relationships between therapist-client, such as comfort, support, and clarification as to the origins of one's suffering (Smail, 2001). The peer support obtained by connecting with other veterans through surfing thus had important therapeutic implications for the veterans in this study. Similarly, qualitative work by Dustin et al. (2011), Mowatt and Bennett (2011), and Carless et al., (2013) revealed that reconnecting with others and experiencing military-style camaraderie was an important by-product of participating in exercise-based interventions which had a positive influence on veterans' mental health.

Quality assurance in veterans' mental healthcare: Current debates

Current and recent debate (in the media, in the academic literature, and at veterans' mental health conferences) has rightly focused on ensuring that only the best quality care is delivered to vulnerable veterans seeking help for PTSD and other mental health problems. This debate has focused primarily on ensuring that treatments are evidence-based, that best practice guidelines are being followed by all treatment providers, and that service providers are not misleading people with unrealistic claims about the capacity of an intervention or treatment to improve symptoms, or even 'cure', PTSD. In this section, we describe how the emerging

evidence base in support of exercise as medicine for mental health in military veterans can contribute to this debate.

As part of the debate regarding evidence-based treatment, two forms of therapy are currently recognised by the UK's National Institute for Health and Care Excellence (NICE) as first-line treatments for PTSD (Greenberg, Brooks & Dunn, 2015). These are trauma-focused cognitive behavioural therapy (CBT) and eye movement desensitisation and reprocessing (EMDR); both of which are time-limited psychological therapies delivered by a clinician typically over the course of 8–12 weekly sessions lasting between 60 and 90 minutes. As Greenberg et al. (2015) note, both forms of therapy have been supported by strong evidence from a number of randomised-controlled trials (RCTs), and have therefore been recommended as routine treatment for people diagnosed with PTSD. For military veterans, group-based CBT has also been recommended as an effective treatment, but that complex cases of PTSD are likely to require more than the prescribed 8-12 sessions.

Yet despite the evidence in support of CBT and EMDR as first-line treatments, these forms of therapy are not without their critics (Bomyea & Lang, 2012; Steenkamp & Litz, 2013). For instance, Steempkamp and Litz (2013) in a clinical review of evidence-based treatments for military-related PTSD argued that "There is mounting evidence that a significant portion of symptomatic veterans and service members do not seek PTSD treatment, refuse treatment when it is offered, drop out of treatment, and/or do not receive evidence-based care in cases where care is provided" (p. 50). These authors also questioned the way in which improvements in veterans' mental health are measured. This included questioning the distinction between 'clinical' and 'sub-clinical' severity of PTSD, "because even minor symptom improvements can lead to a loss of a PTSD diagnosis, no longer meeting diagnostic criteria does not imply that the individual is symptom-free or functioning better" (p. 49). Given these limitations of the more established treatment approaches, it has

been argued that "PTSD remains a difficult disorder to treat and identifying alternative treatment options is imperative" (Cukor et al., 2009; p. 716).

As we have argued so far in this paper, exercise is one form of alternative treatment for PTSD that has been identified and researched. Following Whitworth and Ciccolo (2016) and Rosenbaum et al., (2015), we suggest that exercise may be used, in collaboration and communication with routine care providers, to augment the care and support that veterans receive through the more established clinical pathways. As Whitworth and Ciccolo (2016) put it, "Exercise may be an ideal treatment or adjunct to treatment because it can positively affect many of the psychological and physiological symptoms and/or comorbid conditions specifically faced by military veterans with PTSD" (p. 953). Furthermore, from their meta-analysis of exercise-based RCTs for PTSD Rosenbaum et al. (2015) conclude that "The current review provides evidence to suggest that traditional treatment for trauma (typically involving a combination of trauma focused cognitive behavioural therapy and pharmacological treatments) may benefit from the inclusion of physical activity interventions as adjunctive treatments" (p. 135). Based on the emerging evidence base – both qualitative and quantitative – we therefore suggest that exercise-based interventions be considered as a viable form of 'medicine' for veterans' mental health.

To be clear, we are not advocating exercise as a universal panacea for veterans' mental health; far from it. As other authors have suggested (e.g., Rosenbaum et al., 2016; Whitworth & Ciccolo, 2016), the evidence in support of exercise-based interventions is still maturing and the field of research is in its relatively early stages. We also certainly wish to refrain from making any damaging claims about exercise as a 'miracle cure' for PTSD. Such claims would almost certainly hinder rather than advance the case for exercise being included among the range of recommended treatments for PTSD, and more importantly, may lead to vulnerable veterans being harmed either by pursuing ineffective treatments or by overlooking

potentially effective ones. Yet, given the strength and consistency of the emerging evidence, we suggest that 'exercise as medicine' for mental health in military veterans is, at the very least, worthy of serious consideration and further research.

Quality in service provision

Another aspect of the current debate concerns the range of providers offering novel interventions for PTSD (both exercise and non-exercise based including, for example, innovative therapeutic techniques), and how to ensure that quality services are being uniformly delivered. Increases in the availability of new services and interventions has largely been driven by proliferation of the military charities sector. Notwithstanding the significant benefits to help-seeking veterans resulting from improved choice of provider and availability of services, this expansion brings with it some notable challenges. As Herman and Yarwood (2015) suggested, "Post-military welfare emerges as a competitive, confused and confusing assemblage that needs to be made more navigable in order to better support the 'heroic poor'" (p. 2628). Macmanus and Wessely (2013) capture the causes and implications of this confusion in the following statement:

> There has been an explosion of new third sector providers in recent years, alongside more established brands such as the Royal British Legion and Combat Stress, which have endeavoured to fill in the cracks and deliver veteran-specific care and support to the UK veteran community for many years. This has resulted in a plethora of different approaches, interventions, philosophies and governance procedures. It is not surprising that many veterans report being rather confused. It is also unclear exactly which of these bodies should properly come under the official regulation of bodies such as the Care Quality Commission (CQC), and where the boundaries of treatment versus support lie. (p. 302)

As these authors' comments illustrate, concerns have been raised about the regulation of an increasingly diverse network of providers competing with each other for funding and making competing claims as to the effectiveness of their interventions (Herman & Yarwood, 2015). Such concerns have been amplified by recent media reports that millions of pounds of public money has been squandered on 'unproven' and 'pseudoscientific' therapeutic techniques such as neuro-linguistic programming (Gilligan, 2016). The reported confusion among veterans seeking help for PTSD is thus attributed to difficulties in discerning 'what works' for addressing mental health problems, and from where best to seek help. Linked to our previous discussion of evidence-based treatments, the response from the academic community to the concerns that have been raised is to increase calls for rigorous evaluation and evidence-gathering in relation to novel and innovative interventions for mental health treatment. In addition, recent conference discussions have centred on developing a set of 'guiding principles' that all providers within the veterans' mental healthcare arena can abide by in order to guarantee safe and ethical practice as a minimum, and encouraging veterans to seek the recommended (routine) treatments for PTSD in the first instance (e.g., Bacon & Greenberg, 2016; Ridgway, 2016)[3].

Providers of veterans' mental healthcare and adjunctive treatments (such as exercise) have thus been called upon to demonstrate – through research and evaluation – the effectiveness of their proposed solutions to veterans' mental health problems (Ashcroft, 2014). They are also being called upon to seek accreditation for their treatment approaches through national bodies such as NICE and the Care Quality Commission (CQC). Such accreditation and evidence gathering is further called for by the Confederation of Service Charities (COBSEO), the UK body which aims to provide a single point of contact between

[3] The contact armed forces website (http://www.contactarmedforces.org.uk/) also endorses these principles through a network of charities, academic institutions, Ministry of Defence and National Health Service.

service charities, government, and the Armed Forces community, and to stimulate cooperation and information exchange among the Service charity sector. COBSEO are a network of 203 British Service charities, a number of which comprise a specific cluster of charities focusing on health and well-being of military service personnel and veterans. Each of these charities are called upon to espouse a number of core COBSEO values[4], which include *innovation* - "Search relentlessly for new ideas and practices that will add real value to [our] activities and have a lasting impact on [our] beneficiaries" and *accountability* "Ensure that [our] standards of Governance are fully compliant with best practice" (COBSEO, n.d.). In the arena of veterans' mental healthcare, these core values, together with previous calls for evidence gathering (Ashcroft, 2014), reinforce the need for new approaches to care and treatment, coupled with a firm commitment to rigorous testing and evaluation. Accordingly, there is an emphasis on ensuring that effective, quality care is available to meet the needs of veteran service users, and that new approaches such as "exercise is medicine" are able to meet these needs.

Qualitative research and a way ahead for veterans' mental health research

Veterans' mental health research can benefit strongly and in numerous ways from a further expansion of qualitative research. Firstly, in line with the aforementioned calls for evidence, qualitative research has a crucial role to play in ensuring the rigorous evaluation and auditing of new approaches to veterans' mental health treatment[5]. Indeed, qualitative research is a well-established means of evaluating interventions, programs, and services (e.g., Patton, 1980), and can be used to assess the impact and outcomes of a program as well as understanding the internal dynamics of program operation (Kaimal & Blank, 2015). Key

[4] https://www.cobseo.org.uk/about-us/

[5] Given the focus of this article, our commentary is focused on evaluation of exercise-based approaches, but it is worth noting that our comments apply equally well to evaluations of other novel interventions or approaches

strengths that qualitative research offers to commissioned evaluation projects include an ability to generate more detailed and nuanced descriptions of the impact of exercise-based interventions than it is possible to obtain through the use of clinical outcome measures. Whilst such measures (e.g., PCL for PTSD, AUDIT for alcohol) are useful in generating standardised diagnostic scores that can be compared over time and across interventions, they cannot capture the detail and complexity of veterans' experiences of mental health in the way that qualitative methods allow. For instance, qualitative research can generate valuable descriptive information regarding core program outcomes like quality of life. Furthermore, qualitative methods enable veterans to share critical thoughts about an intervention, including various elements that they liked or disliked, whether they found the delivery of an intervention acceptable, how engaged they were, and how likely they may be to participate in similar interventions compared to routine treatments.

Second, qualitative research can help to generate more impactful research in veterans' mental health because it promotes working *with* veterans to develop better solutions and interventions. In line with the current impact agenda in higher education, qualitative research offers numerous opportunities for engaging service users in the research process in ways that enhance the relevance and application of research findings (Kay, 2016). For example, participatory action research (PAR) is a qualitative-based methodology which seeks to involve communities and service users at every stage of a research project. Participants co-create the research by helping decide what questions need to be asked (i.e., what matters to them), and often by assisting in collecting and interpreting research data and helping to make better use of the results (e.g., Golob & Giles, 2013; Holt et al., 2013). Research on the topic of 'exercise is medicine' for veterans' mental health could productively utilise PAR (or other forms of participatory inquiry, like community based research (see Schinke & Blodgett, 2016) to ensure the continuing development of exercise-based interventions in line with

veterans' wants and needs. Indeed, participatory forms of inquiry are already influencing UK health service research under the rubric of public and patient involvement (PPI), which is often a requisite component of projects funded by bodies such as the National Institute for Health Research (NIHR). Importantly, qualitative methods provide ample opportunity for engaging people in the research process in ways that move beyond the tokenistic.

Thirdly, and linked to the above points, qualitative research is a vital component of the social process known as knowledge translation (KT); "ensuring that stakeholders are aware of and use research evidence to inform their health and healthcare decision-making" (Grimshaw et al., 2012). KT is about empowering these various stakeholders (e.g., policy makers, veterans, families, mental health professionals) to become better consumers and users of research through specific strategies such as educational meetings, printed educational materials, infographics, interactive online tools, public outreach, informational videos, and use of social media (e.g., Grimshaw et al., 2012). Qualitative research can be used inform the creation of such strategies/materials, to evaluate the success of KT initiatives, and as the source of knowledge that is translated. One example is the use of storytelling as a means of communication and dissemination of research findings (Smith, Tomasone, Latimer-Cheung & Martin-Ginis, 2015; Smith, Papathomas, Martin-Ginis & Latimer-Cheung, 2013). As Smith et al. (2015) demonstrated, using stories to translate physical activity knowledge for consumption by disabled service users worked as an effective means of communication and by presenting these audiences with 'credible messengers' in the form of other disabled service users. Research by Carless and Douglas (2010) further reveals that diverse forms of storytelling – including music and performance ethnography – can be used with considerable potency for engagement and impact. Following such examples, there are several ways KT through qualitative research might be used to enhance the success of exercise-based interventions for veterans' mental health. These could include communicating research

findings to veterans and care providers, making findings policy-relevant and accessible, and better integrating exercise-based interventions with routine care pathways and providers.

Finally, qualitative research also promotes an enhanced reflexive element as part of veterans' mental health research. As Carrieras & Caetano (2016) argued, reflexivity is an important component of military-related research as a way of improving the quality of, and accountability in, the research process. As these authors put it, "By allowing a better understanding of the interplay between social, scientific and policy dynamics, such enhanced reflexivity leads to greater awareness and conscious choices regarding the future of this study field" (p. 17). A recent example from the field of veterans' mental health research is provided by Carless and Douglas (2016b), which illustrates the utility of a reflexive approach within commissioned evaluation research for engaging with the politics of research processes (e.g., pressure from funders to demonstrate the effectiveness of interventions), and ethical challenges regarding the recounting and revisiting of traumatic experiences by participants.

In making the above points, our intention is not to argue against the use of more established quantitative methods such as the randomised controlled trial (RCT) but rather to demonstrate the unique and vital contribution that qualitative research can make to the ongoing processes of evidence-gathering and generating impact. Qualitative research can *add to* RCTs, or even be integrated within RCTs to enhance their impact (see Lewin et al., 2009; O'Cathain et al., 2013), but it is also a valuable source of evidence and form of inquiry in its own right. As we have argued in this paper, qualitative research has made an important contribution to the emerging evidence base regarding "exercise as medicine" for veterans' mental health and has many important contributions to make in further developing this research agenda.

Critical reflections

Whilst there is much to celebrate about the potential of exercise-based interventions to support and promote the mental health of military veterans, it is also important to retain a critical perspective on the use of exercise as medicine (Douglas & Carless, 2015; Smith & Perrier, 2015). Two broad points are worth noting in this regard. Firstly, in promoting exercise as 'medicine' for veterans' mental health, there is a danger that exercise-based interventions could become framed solely within medicalised understandings of mental health and treatment (Smith & Perrier, 2015). Within a purely medicalised understanding, the outcomes of exercise-based interventions may become weighted towards symptom alleviation or the reduction of 'pathology' (Caddick & Smith, 2014)[6]. Herein lies a dilemma for proponents (e.g., charities, researchers, exercise psychologists) of exercise-based approaches to supporting mental health among veterans. On the one hand, the discourse of exercise as 'medicine' may constitute a powerful means of demonstrating the benefits of exercise, sport and physical activity in ways that doctors, psychiatrists and the medical community might readily appreciate. In particular, establishing exercise as an 'evidence-based treatment' would confer a legitimacy that exercise has traditionally lacked as a result of a perceived 'simplicity' and incompatibility with clinical treatment models (Faulkner & Biddle, 2001). By aligning exercise with medicine, providers of exercise-based interventions for veterans might crucially be better placed to attract funding in support of their work, having at their disposal a powerful clinical language (e.g., 'treatment', 'therapy', 'clinical impact') with which to articulate the benefits and funding requirements. Politically speaking, promoting exercise as medicine might therefore constitute a good strategy in terms of arguing for a share of the resources for veterans' mental health treatment to be directed towards

[6] It is worth noting that qualitative research might be useful for countering a focus on pathology, for example by capturing the full range of emotions and benefits that may arise from taking part in exercise.

exercise-based approaches.

However, there may be possible unintended consequences associated with the above strategy. For example, the very alignment of exercise with 'medicine' which may help to enhance its legitimacy could also potentially undermine its appeal in the eyes of veterans themselves, for whom a precisely *non*-medical approach may play a key role in challenging the stigma that can be associated with mental health treatment (Caddick et al., 2015b; Whitworth & Ciccolo, 2016). Indeed, several papers discussed above suggest that part of what draws veterans to exercise as a 'positive' or 'proactive' means of dealing with mental health may be the positive associations with the physical culture of the military (Caddick et al., 2015a, 2015b; Carless et al., 2013), and a perceived distance from more passive, clinically-oriented approaches – such as taking medication. Accordingly, it is worth reflecting on whether the instrumental rationality of promoting exercise as *medicine*[7] fits with the needs and interests of veterans seeking help for mental health concerns. One way to do this may be to conduct further qualitative research with veterans to explore whether the promotion and marketing of exercise as medicine would make them more or less likely to engage and why.

Secondly, there is a danger that with uncritical promotion of 'exercise as medicine', the general narrative that "exercise is good for you" could become an *obligation* to be active, and to adopt a mandatory "get-up-and-go" positive attitude often associated with exercise cultures. Smith and Perrier (2015), for example, describe a 'neoliberal health role', whereby taking part in exercise becomes expected from people as 'good' citizens diligently pursuing recovery from their mental illness. By implication, those who do not exercise, who are inactive or sedentary, are 'bad'. Alternatively, those who fail to improve their mental health through exercise-based interventions may be considered as not being active enough or not working hard enough at their recovery. Exercise as medicine could thereby become linked to

[7] For further critique on the instrumental rationale of 'exercise as medicine', see Neville (2013)

a neoliberal 'recovery imperative' (O'Brien, 2012), whereby positive attitudes and positive outcomes are expected of those who take part without the necessary acknowledgement of potential ongoing struggles.

Accordingly, whilst seeking to promote the benefits of exercise as medicine for mental health in military veterans, it is equally necessary to recognise that this approach may not be for everyone. For example, Douglas and Carless (2015) provide a vivid portrayal of one former soldier's experiences of a sports and adventure training camp whereby being encouraged to take part in various activities was considered as unhelpful for addressing his problems. For this soldier ("Luke") – who told a 'counter-story' to the dominant positive story of participation – lacking opportunities to talk about his ongoing problems contributed to continuing feelings of anger and distress. In Luke's words "it's time to break down this whole stiff upper lip attitude and start seriously talking about these [mental health] issues" (Douglas & Carless, 2015; p. 465). And as Douglas and Carless described "In this counter story, competition is not inherently good, vulnerability is not negative, and care and connection are foremost. It is through accessing such alternative stories and having them accepted by people who listen, validate, and value these alternatives that others like Luke can begin to repair a damaged identity" (p. 465).

In light of the above critical reflections, a number of steps may be taken to ensure the responsible promotion of exercise-based interventions for veterans' mental health. Firstly, proponents should emphasise exercise-based approaches as *an* approach – not the only or best approach – to supporting the mental health and well-being of military personnel and veterans. Second, efforts to promote exercise-based approaches might focus on highlighting the meaningful benefits (including clinical benefits) that might be gained by veterans, whilst also being mindful that a *non*-clinical approach to communication and delivery may be crucial for veterans themselves. Third, further research should be conducted to expand the

evidence-base regarding exercise-based approaches for veterans' mental health. This should include longitudinal research to examine changes in veterans' mental health over-time and after their engagement with exercise-based approaches. More diverse qualitative methodologies (e.g., ethnographies, case studies) might also be used to shed light on the physical culture of veterans' exercise participation, and to disentangle the various aspects (e.g., individual vs. group-based, competitive vs. non-competitive, natural vs. built environments) of exercise-based approaches that may be important for supporting mental health (Caddick & Smith, 2014).

Conclusion

An emerging evidence base highlights the value of exercise as an adjunctive form of treatment for mental health problems such as PTSD in military veterans. Qualitative research has made a significant contribution to this evidence and has identified numerous outcomes and processes by which exercise can improve the mental health of veterans. Further research, including longitudinal follow-ups, is required to evaluate the effectiveness of exercise-based interventions and to promote quality mental health services for veterans. Qualitative research has a crucial role to play in conducting rigorous evaluations of exercise-based interventions for veterans' mental health, in generating more impactful research, and working *with* veterans and communities to maximise the relevance and application of research findings. We hope that this article helps to stimulate further debate combined with critical reflection on the use of 'exercise as medicine' to support and promote the mental health of military veterans.

References

Ashcroft, M. (2014) [Online]. *The Veterans' Transition Review*. Available at: www.veteranstransition.co.uk/vtrreport.pdf. *[Accessed: 04.12.16]*.

Bacon, A., & Greenberg, N. (2016). The mental health roundtable and the way ahead. Oral presentation delivered at *Veterans' Mental Health: The Road Ahead* conference, March 2016, London.

Bomyea, J., & Lang, A. (2012). Emerging interventions for PTSD: Future directions for clinical care and research. *Neuropharmacology, 67,* 607-616.

Brittain, I., & Green, S. (2012). Disability sport is going back to its roots: rehabilitation of military personnel receiving sudden traumatic disabilities in the twenty-first century. *Qualitative Research in Sport, Exercise and Health, 4*, 244-264.

Burdett, H., Woodhead, C., Iversen, A., Wessely, S., Dandeker, C., & Fear, N. (2012). ''Are you a veteran?'' Understanding of the term ''Veteran'' among UK ex-service personnel: A research note. *Armed Forces & Society, 39,* 751–759.

Burke, S., & Utley, A. (2013). Climbing towards recovery: investigating physically injured combat veterans' psychosocial responses to scaling Mt. Kilimanjaro. *Disability & Rehabilitation, 35,* 732-739.

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

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

Caddick, N., Smith, B., & Phoenix, C. (2015a). The effects of surfing and the natural environment on the well-being of combat veterans. *Qualitative Health Research, 25,* 76-86.

Caddick, N., Smith, B., & Phoenix, C. (2015b). Male combat veterans' narratives of PTSD, masculinity, and health. *Sociology of Health and Illness, 37,* 97-111.

Carless, D. (2014). Narrative transformation among military personnel on an adventurous training and sport course. *Qualitative Health Research, 24*, 1440-1450.

Carless, D. & Douglas, K. (2010). Performance ethnography as an approach to health-related education. *Educational Action Research, 18*(3), 373-388.

Carless, D., & Douglas, K. (2016a). Narrating embodied experience: Sharing stories of trauma and recovery. *Sport, Education and Society, 21*(1), 47-61.

Carless, D., & Douglas, K. (2016b). When two worlds collide: A story about collaboration, witnessing, and life story research with soldiers returning from war. *Qualitative Inquiry*. DOI: 10.1177/1077800416660579.

Carless, D., Sparkes, A., Douglas, K., & Cooke, C. (2014). Disability, inclusive adventurous training, and adapted sport: Two soldiers' stories of involvement. *Psychology of Sport and Exercise, 15*, 124-131.

Carrieras, H & Caetano, A. (2016) Reflexivity and the sociological study of the military. In H. Carrieras, C. Castro, & S. Frederic (Eds.), *Researching the military* (pp. 8-22). Abingdon: Routledge.

COBSEO (n.d.). https://www.cobseo.org.uk/about-us/. [Accessed online 04/12/016].

Cooper, L., Caddick, N., Godier, L., Cooper, A., & Fossey, M. (2017). Transition from the military into civilian life: An exploration of cultural competence. *Armed Forces & Society*. DOI: 10.1177/0095327X16675965.

Craft, L., & Perna, F. (2004). The benefits of exercise for the clinically depressed. *Primary Care Companion. Journal of Clinical Psychiatry, 6*, 104-111.

Cukor, J., Spitalnick, J., Difede, J., Rizzo, A., & Rothbaum, B. (2009). Emerging treatments for PTSD. *Clinical Psychology Review, 29*, 715-726.

Dandeker, C., Wessely, S., Iversen, A., & Ross, J. (2006). What's in a name? Defining and caring for "veterans". *Armed Forces & Society, 32*(2), 161-177.

Douglas, K., & Carless, D. (2015). Finding a counter story at an inclusive, adapted, sport and adventurous training course for injured, sick, and wounded soldiers: Drawn in-Drawn out. *Qualitative Inquiry, 21*(5), 454-466.

Dustin, D., Bricker, N., Arave, J., & Wall, W. (2011). The promise of river running as a therapeutic medium for veterans coping with post-traumatic stress disorder. *Therapeutic Recreation Journal, 45,* 326-340.

Faulkner, G., & Biddle, S. (2001). Exercise and mental health: It's just not psychology! *Journal of Sports Sciences*, *19*, 433-444.

Faulkner, G., & Biddle, S. (2004). Exercise and depression: Considering variability and contextuality. *Journal of Sport & Exercise Psychology, 26*, 3-18.

Gilligan, A. (2016). Scandal as war heroes' charity millions vanish. *The Times*. http://www.thetimes.co.uk/article/scandal-of-war-vets-vanished-charity-funds-mjxnd79pw. [Accessed online: 03/12/16].

Golob, M., & Giles, A. (2013). Challenging and transforming power relations within community-based participatory research: The promise of a Foucauldian analysis. *Qualitative Research in Sport, Exercise and Health, 5*(3), 356–372.

Grimshaw, J., Eccles, M., Lavis, J., Hill, S., & Squires, J. (2012). Knowledge translation of research findings. *Implementation Science, 7*(50), 1-17.

Greenberg, N., Brooks, S., & Dunn, R. (2015). Latest developments in post-traumatic stress disorder: diagnosis and treatment. *British Medical Bulletin, 114*(1), 147-55.

Hawkins, B., Cory, A., & Crowe, B. (2011). Effects of participation in a Paralympic military sports camp on injured service members. *Therapeutic Recreation Journal, 45,* 309-325.

Hawkins, B., Townsend, J., & Garst, B. (2016). Nature-based recreational therapy for military service members. *Therapeutic Recreation Journal, 50*(1), 55-74.

Hefferon, K., Mallery, R., Gay, C., & Elliott, S. (2013). Leave all the troubles of the outside world': a qualitative study on the binary benefits of 'Boxercise' for individuals with mental health difficulties. *Qualitative Research in Sport, Exercise and Health, 5*(1), 80-102.

Herman, A., & Yarwood, R. (2015). From warfare to welfare: veterans, military charities and the blurred spatiality of post-service welfare in the United Kingdom. *Environment and Planning A, 47*, 2628–2644.

Higate, P. (2003). 'Soft clerks' and 'hard civvies': Pluralizing military masculinities. In Higate, P. (ed.), *Military masculinities: Identity and the state*. Westport: Praeger.

Holt, N., McHugh, T-L., Tink, L., Kingsley, B., Coppola, A., Neely, C., & McDonald, R. (2013). Developing sport-based after-school programmes using a participatory action research approach. *Qualitative Research in Sport, Exercise & Health, 5*(3), 332-355.

Kaimal, G., & Blank, C. (2015). Program evaluation: A doorway to research in the creative arts therapies. *Art Therapy: Journal of the American Art Therapy Association, 32*(2), 89–92.

Kay, T. (2016). Knowledge, not numbers: Qualitative research and impact in sport, exercise and health. In B. Smith & A. Sparkes (eds.), *Handbook of qualitative research in sport and exercise* (pp. 424-437). London: Routledge.

Keng, S-L., Smoski, M., Robins, C. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, *31*, 1041–1056.

Lewis, S., Glenton, C., & Oxman, A. (2009). Use of qualitative methods alongside randomised controlled trials of complex healthcare interventions: Methodological study. *British Medical Journal, 339*, b3496. doi: 10.1136/bmj.b3496.

Lorber, W. and Garcia, H. (2010). Not supposed to feel this: Traditional masculinity in psychotherapy with male veterans returning from Afghanistan and Iraq. *Psychotherapy Theory, Research, Practice, Training, 47*(3), 296–305.

Lundberg, N., Bennett, J., & Smith, S. (2011). Outcomes of adaptive sports and recreation participation among veterans returning from combat with acquired disability. *Therapeutic Recreation Journal, 45,* 105-120.

Macmanus, D., & Wessely, S. (2013). Veteran mental health services in the UK: Are we heading in the right direction? *Journal of Mental Health, 22,* 301-305.

Messinger, S. (2010). Getting past the accident: Explosive devices, limb loss, and refashioning a life in a military medical centre. *Medical Anthropology Quarterly, 24*(3), 281-303.

Mowatt, R., & Bennett, J. (2011). War narratives: veteran stories, PTSD effects, and therapeutic fly-fishing. *Therapeutic Recreation Journal, 45,* 286-308.

Neville, R. (2013). Exercise is medicine: Some cautionary remarks in principle as well as in practice. *Medical Health Care and Philosophy, 16,* 615-622.

O'Brien, W. (2012). The recovery imperative: A critical examination of mid-life women's recovery from depression. *Social Science & Medicine, 75,* 573-580.

O'Cathain, A., Thomas, K., Drabble, S., Rudolph, A., & Hewison, J. (2013). What can qualitative research do for randomised controlled trials? A systematic mapping review. *BMJ Open, 3*(6), e002889. doi:10.1136/bmjopen-2013-002889.

Otter, L., & Currie, J. (2004). A long time getting home: Vietnam veterans' experiences in a community exercise rehabilitation programme. *Disability and Rehabilitation, 26,* 27-34.

Patton, M. (1980). *Qualitative evaluation methods*. Beverly Hills, CA: Sage.

Ridgway, A. (2016). The view from the service charity sector. Oral presentation delivered at *Veterans' Mental Health: The Road Ahead* conference, March 2016, London.

Robertson, R., Robertson, A., Jepson, R., & Maxwell, M. (2012). Walking for depression or depressive symptoms: A systematic review and meta-analysis. *Mental Health and Physical Activity*, *5*, 66-75.

Rogers, C., Mallinson, T., & Peppers, D. (2014). High-intensity sports for posttraumatic stress disorder and depression: Feasibility study of ocean therapy with veterans of Operation Enduring Freedom and Operation Iraqi Freedom. *The American Journal of Occupational Therapy, 68*(4), 395-404.

Rosenbaum, S., Vancampfort, D., Steel, Z., Newby, J., Ward, P., & Stubbs, B. (2015). Physical activity in the treatment of Post-traumatic stress disorder: A systematic review and meta-analysis. *Psychiatry Research*, *230*(2), 130-136.

Schinke, R. J., & Blodgett, A. T. (2016). Embarking on community based participatory action research: A methodology that emerges from (and in) communities. In B. Smith & A. C. Sparkes (Eds.), *Routledge Handbook of Qualitative Research in Sport and Exercise* (pp. 88-99). London: Routledge.

Sharp, M-L., Fear, N., Rona, R., Wessely, S., Greenberg, N., Jones, N., Goodwin, L. (2015). Stigma as a barrier to seeking health care among military personnel with mental health problems. *Epidemiologic Reviews, 37*, 144-162.

Shirazipour, C. H., Evans, M. B., Caddick, N., Smith, B., Aiken, A. B., Martin Ginis, K. A., Latimer-Cheung, A. E. (2017). Understanding a quality sport experience: Exploring perspectives of veterans with a physical disability. *Psychology of Sport & Exercise, 29*, 40-50.

Smail, D. (2001). *The Nature of Unhappiness*. London: Robinson.

Smith, B., Papathomas, A., Martin Ginis, K., & Latimer-Cheung, A. (2013). Understanding

physical activity in spinal cord injury rehabilitation: Translating and communicating research through stories. *Disability and Rehabilitation, 35*(24), 2046-2055.

Smith, B., & Perrier, M-J. (2015). Disability, sport, and impaired bodies: A critical approach. In R. Schinke & K. McGannon (eds.), *The psychology of sub-culture in sport and physical activity: Critical perspectives* (pp. 95-106). London: Psychology Press.

Smith, B., Tomason, J., Latimer-Cheung, A., & Martin-Ginis, K. (2015). Narrative as a knowledge translation tool for facilitating impact: Translating physical activity knowledge to disabled people and health professionals. *Health Psychology*, *34*(4), 303-313.

Steenkamp, M., & Litz, B. (2013). Psychotherapy for military-related posttraumatic stress disorder: Review of the evidence. *Clinical Psychology Review, 33*, 45-53.

Vujanovic, A., Niles, B., Pietrefesa, A., Schmertz, S., & Potter, C. (2011). Mindfulness in the treatment of posttraumatic stress disorder among military veterans. *Professional Psychology: Research and Practice, 42*(1), 24–31.

Whitworth, J., & Ciccolo, J. (2016). Exercise and post-traumatic stress disorder in military veterans: A systematic review. *Military Medicine, 181*(9), 953-960.