Manuscript Number:

Title: An exploration of the biological, psychological and social benefits and shortfalls for Armed Forces veterans engaged in archaeological activities.

Article Type: SI: Military

Section/Category: Original Research

Keywords: Veterans
Mental Health and Wellbeing
Outdoor Activities
Military Nursing
British Army
Qualitative Research
Grounded Theory
Rehabilitation

Corresponding Author: Prof. alan finnegan, PhD., MSc., BN,

Corresponding Author's Institution: British Army

First Author: alan finnegan, PhD., MSc., BN,

Order of Authors: alan finnegan, PhD., MSc., BN,

Manuscript Region of Origin: UNITED KINGDOM

Abstract: Background: Organised outdoor activities are advocated as promoting multiple benefits for a veteran's wellbeing, of whom up to 50% have suffered either / both physical and mental health (MH) problems. This has resulted in significant investment in a growing number of outdoor events, one of which is the Defence Archaeology Group (DAG) which utilise the technical and social aspects of field archaeology in the recovery and skill development of injured veterans.

Objective: To advance knowledge within veterans MH and wellbeing through an understanding of the potential long term psychological benefits and shortfalls for veterans undertaking DAG activities.

Design: A constructivist grounded theory approach was used to enable identification of the issues from the participant veteran's perspective.

Setting: DAG archaeological excavations in April and August 2015.

Method: Semi-structured interviews with 14 veterans.

Results: The qualitative coding resulted in the indication of 18 categories subsumed within four clusters: motivation and access; mental health; veteran and teamwork; therapeutic environment and leadership.

Discussion: The psychological benefits were improved self-esteem, confidence, a reduction in stigma and motivation to seek help. The reduction in situational stressors associated with difficult life conditions also appeared to improve mood, and there was a clear benefit in being in a caring environment where other people actively paid an interest. There were extended social benefits associated with being accepted as part of a team within a familiar military environment, which presented an opportunity to establish friendships and utilise military skill sets.

Conclusion: Organised outdoor activities offer multi-factorial hope for veterans searching for ways to ease the transition to civilian life and recover from military stress and trauma. The relaxing and reflective environment within a military setting appears to construct a sense of personal safety and thereby offers therapeutic value.

COVERING LETTER

An exploration of the biological, psychological and social benefits and shortfalls for Armed Forces veterans engaged in archaeological activities.

Research Paper submitted for Publication in Nurse Education Today.

Author:

Colonel Alan FINNEGAN FRCN L/QARANC PhD RN (MH) CPN(Cert), Defence Professor of Nursing & Head of the Academic Department of Military Nursing, Royal Centre for Defence Medicine, ICT Centre, Birmingham Research Park, Vincent Drive, Birmingham, B15 2SQ, United Kingdom

Contributor statement:

Author 1 has overall responsibility for the article.

Funding Statement. This is an independent research with no allocated funding source

TITLE PAGE

Full title: **An exploration of the biological, psychological and social benefits and shortfalls for Armed Forces veterans engaged in archaeological activities.**

Running heading: Military veterans and archaeology

Article type – Original Research

Author: Colonel Alan FINNEGAN FRCN L/QARANC PhD RN (MH) CPN(Cert), Defence Professor of Nursing & Head of the Academic Department of Military Nursing, Royal Centre for Defence Medicine, ICT Centre, Birmingham Research Park, Vincent Drive, Birmingham, B15 2SQ, United Kingdom

Phone: 01244 312027 Email: a.finnegan@chester.ac.uk

Acknowledgements: Surgeon Commodore Peter Buxton OBE and Sergeant Diarmaid Walshe

Conflict of interest. Nil.

Funding Statement. This is an independent research with no allocated funding source.

Word Count: 5958.

INTRODUCTION

In the UK, the armed forces community of serving personnel, reservists, their families and veterans is approximately 10 million (NHS Choices, 2015a), of which roughly 2.8 million are armed forces veterans (NHS Choices, 2015b). Helping veterans cope with the negative physical and mental health (MH) problems associated with service in the armed forces has become increasingly important in recent years given the demands placed on military personnel and their families (Ministry of Defence (MOD, 2011; MOD, 2015). The Invictus games were launched in 2014 (Invictus Games Foundation, 2015) to provide members of the UK armed forces who had been seriously injured with an opportunity to compete in athletic events. These games showcased the benefits of physical exercise and endeavour as part of a veteran's rehabilitation (Pleasant & Smith, 2014). This initiative follows on from similar events in the US where there is a veteran population of 25 million (US Air Force, 2015; Team USA, 2015).

BACKGROUND

Many veterans experience difficulty reintegrating into civilian life (Ashcroft, 2014; Burdett et al, 2014) and evidence suggests that significant numbers experience post-traumatic distress or other MH problems (Seal et al, 2007; Sundin et al, 2010). Whilst conventionally prescribed international treatments primarily involve medication and therapy (Department of Veterans Affairs, 2004; National Institute for Clinical Excellence (NICE), 2005; Institute of Medicine (IoM), 2008; IoM 2012) many people are turning to alternative therapies such as Yoga (Cabral et al, 2011; Emerson et al, 2009).

There is significant investment in the growing number of outdoor activities that are viewed as producing a positive effect to a veteran's physical and MH wellbeing (Bowler et al, 2010). These activities are therefore viewed as beneficial projects for injured or traumatised personnel (Duvall & Kaplan, 2013) and include horse riding (HorseBack UK, 2015), fly fishing (Healing Waters, 2015; Fishing for Heroes, 2015), Horticultural (Wise, 2015) and walking and water sports (Veterans in Communities, 2015). These extend to specific groups such as the blind (Blind Veterans UK, 2015).

Field exercises offers hope for veterans searching for methods to ease the transition to civilian life and recover from military stress and trauma (Westlund, 2014). Veterans participating in prolonged outdoor group recreation show signs of improved MH, suggesting a link between the activities and long-term psychological well-being (Duvall & Kaplan, 2013). Whilst these initial reports are promising, more research is required in this poorly studied area as many questions remain regarding the use of extended group-based outdoor recreation programs to ease veterans' transition back into civilian life and longer term integration. Following a comprehensive international literature search

and discussions with subject matter experts, there appears to be little empirical evidence regarding the benefits of undertaking outdoor activities or no identified research regarding the potential shortfalls for UK veterans and regular Service personnel engaged in these organised events.

Operation NIGHTINGALE

Operation NIGHTINGALE presents a format of the growing outdoor physical, sporting, recreational and adventure training activities that have been established to support badly injured veterans and address emotional stress in uniformed and veteran populations. This initiative was established by a mixture of Defence Medical Services (DMS) clinician personnel and University academics who formed a Defence Archaeology Group (DAG) and launched Operation NIGHTINGALE (DAG, 2015). This was founded in 2012, with the intent of utilising both the technical and social aspects of field archaeology in the recovery and skill development of soldiers injured in the conflict in Afghanistan and other conflict zones. Many of these attendees had sustained an operationally attributable MH disorder. DAG attendees consist of serving armed forces personnel, veterans and archaeology students. Supporting staff include armed forces personnel, MOD Infrastructure Organisation and full-time field archaeologists, and academics from the University of Leicester. The excavation projects and settings are defined by professional civilian archaeologists. There are reported psychological benefits and improved wellbeing with the Service personnel who are attend Operation NIGHTINGALE (Nimenko & Simpson, 2013).

Context of the Activity

Veterans may identify more strongly with outdoor activities that involve physical challenge, camaraderie and achievement of an objective; experiences that are associated with military service (Duvall & Kaplan, 2011). There is a close correlation between the skills required by the modern soldier and those of the professional archaeologist. These skills include surveying, geophysics (for ordnance recovery or revealing cultural heritage sites), scrutiny of the ground (for improvised explosive devices or artefacts), site and team management, mapping, navigation and the physical ability to cope with hard manual work in often inclement weather conditions. They are outside, in a group, living in an environment previously chosen as an occupation. They have a mission statement, an understanding of what is required and make an estimate of how to achieve their goal. These meetings typically last for 10 to 14 days, and are completed both in the UK and abroad. The exercises do not include formal, structured psychological counselling or therapy. Importantly, these military activities are associated with recognised benefits of being in the Army (Hacker Hughes et al, 2005; Finnegan et al, 2011) and benefits of serving in Afghanistan (Finnegan et al, 2015).

This qualitative research study provides an exploration and critical analysis on the potential positive or detrimental physical and MH effects of participation in DAG activities and considers if the establishment of a therapeutic environment provides a medium for addressing psychological trauma.

AIM

The study aim is to advance knowledge within veterans MH and wellbeing through an understanding of the potential long term psychological benefits and shortfalls for veterans undertaking DAG activities.

METHODOLOGY

The study is based within a biopsychosocial model (Engel, 1977) with a constructivist grounded theory approach (Silverman, 2013; Charmaz, 2014) that specifies that the factors influencing a person's perception are not a standardised phenomenon, but take on a particular meaning moulded by the environment, media, political views, local contexts and cultures (Silverman, 2013). Grounded theorists consider that valuable information is grounded in the views and thoughts of the research sample (Charmaz, 2014), and the practical methodological guidelines demonstrates how the subject population cultivate knowledge and views. This model provides a medium that is positioned close to the data, and offers conceptual durability, explanation, reliability. (Glaser & Strauss, 1967; Charmaz, 2014).

This methodology focuses questions on asking how, when and where the research population generate their descriptions, and accepts the value of undertaking qualitative research during the research study activity. In this case the required evidence can be gained from the beliefs of the veterans engaged in the DAG activities. Constructivist grounded theory has proven specifically appropriate for assessing British DMS personnel who were detached from their normal social structures and family environments, where sample groups ranged between 12 and 19 personnel (Crawford et al, 2009; Batham et al, 2012; Kiernan et al, 2013; Finnegan et al 2014, Finnegan et al, 2015).

A well-defined interview schedule was constructed following extensive consultation and a pilot study. In addition, the respondents completed a short survey providing basic demographic information to help inform future researchers and provide some basic background detail. The author had previously attended a DAG event to observe activities and get an appreciation of the endeavours. During this visit, all veteran attendees indicated their willingness to engage in research at a later date.

METHOD

This study utilised semi-structured interviews with a convenience sample 14 veterans engaged in DAG activities during two excavations in April 2015 and August 2015. The author conducted the interviews in field conditions e.g. in a tent during two planned DAG Exercises which presented certain challenges. However, extensive experience of conducting similar research studies ensured that this barrier did not compromise the interviews, and conversations were not overheard and confidentiality maintained. Digital audio recorded interviews were uplifted at the earliest opportunity and stored on a password protected computer.

The author's armed forces and MH experience ensured familiarity with both the phenomena and the clinical and military nuances of language. Each participant was interviewed once only due to geographical limitations. Demographic detail was provided before the interview commenced, then interviews conducted and continued until saturation was achieved (Charmaz, 2014). During analysis all emerging categories were used consistently (Mays & Pope, 1995). Attendees wanted to discuss their operational experiences, and the researcher's experience of dealing with patients following extremely difficult MH consultations ensured that where appropriate the conversations did not venture into discussing events likely to cause distress.

Sample

The contributors were drawn from the wide heterogeneous veteran population that differ by factors such as age, trade, gender, and length of service. Respondents had undertaken operational tours in many countries, including Iraq, Northern Ireland, Falklands Islands, Afghanistan, and the Balkans. There was also a USA attendee and one living in Australia. Respondents had worked in the Royal Military Police, infantry, Army Catering Corps, Royal Artillery, RAF, Coldstream Guards, and a parachute regiment. There was no typical career pathway, with service ranging from a few months to 45 years. Some had been involved in traumatic incidents, or on operational tours during periods of significant activity, and witnessed numerous challenging situations such as being petrol bombed. This group reported a mixed response to the level of post event support that was offered, with cases of no MH intervention. There were operationally related injuries such as loss of limbs, hearing difficulties, or a history of MH problems. Others reported being healthy in both mind and body.

Ethics

A member of the directing staff informed participants of the research and study outline at the beginning of the events. Attendees were provided with a copy of the research participant information

sheet (PIS) including detail of the measures taken to ensure anonymity by strictly concealing participant's names in reports and publications, and they were given the opportunity to ask questions. Each volunteer understood that they could withdraw without any form of repercussion. A key message throughout was that the research sought volunteers to opt into the research; not opt out. At the beginning of the interview, voluntary informed consent was obtained and the PIS discussed. Information is being stored in accordance with the Data Protection Act (1998), and the University of Central Lancashire Research Ethical Committee approved the study (NHS Health Research Authority, 2014). Presentation of the findings is intended to protect anonymity of respondents who will be referred to as AA, BB and no further information is disclosed.

RESULTS

Interviews lasted between 17 and 53 minutes with a mean of 31 minutes, resulting in >50,000 words of data. The author transcribed the interviews soon after the consultation, including some on the same day, thus providing an opportunity to pursue leads early. The qualitative coding informed by memo writing, constant comparison of the data, and supervision resulted in the identification of 18 categories. These themes produced a story that reflected the interviewees' real-time perceptions and opinions leading to an evolving model comprising of four major clusters: access and motivation; MH; veterans and teamwork; therapeutic environment and leadership. These groupings are responsive to the dynamic mediums of manpower and type of setting. This model is presented diagrammatically at Figure 1 with the intent of portraying the relationships between categories to ensure accuracy and clarity. As an emergent theory, the model will require further testing. Demographic detail is in Table 1. The respondents also assessed the event on a scale of 0 to 10 where 0 was very poor and 10 was excellent, and scored the event at 9.5 (range 8 to 10). The findings are presented in the following discussion and are extracted from respondents' beliefs, and relevant quotes are utilised to illuminate this information.

DISCUSSION

Armed forces life, transition and associated stressors

Participants reported having thoroughly enjoyed military life, including deployments, and a general commentary of missing the Armed forces. All classed themselves as ex-armed forces, and identified a clear differential with civilians. This identify resounded from having served their country, and they were proud of this history. Reasons for enlisting differed such as leaving a dysfunctional lifestyle, whilst others had never wanted to do anything else. On leaving, there were reports of lots of support

from a caring organisation that did everything possible to help the workforce, whilst others felt very bitter of how they were treated. A number were medically discharged for operationally related injuries or disorders such as diabetes. Where there were physical problems, the objective for leaving was to maintain self-esteem due to a perceived lack of understanding within the military. There were instances of leaving for MH problems including PTSD, although these attendees were unaware of the diagnosis at the time.

Transition appeared to have differing effects dependent on the decision for leaving the Armed forces; whether compulsory discharge for medical reasons, compulsory at end of service or Pre Voluntary Release (PVR). For some participants, it was straight-forward and unproblematic. For many transition was a particularly stressful time, and those discharged on medical grounds had envisaged a long career, even after being injured, and felt rejected. On leaving, there were descriptions of significant personal doubt and feelings of worthlessness, lack of purpose and having their responsibility stripped away. Participants described not being supported during the transition period, of receiving mixed messages, misinformation, and ignorance of procedures. Both then and at the time of the interviews, there were reports of accommodation, finance, occupational, family / relationship problems and on-going medical issues.

Post Armed forces occupational and financial support were in place for some with pensions providing for a feudal lifestyle. However, the loss of earning was acute, with large amounts subsumed by outstanding debts. Employment had proven particularly problematic, with jobs secured where they could. Some sought work in occupations they perceived shared a common culture or camaraderie to the military such as civilian security forces. Other participants pursued solitary night employment to avoid human contact. In addition, medical and / or MH problems restricted employment opportunities leading to a poor quality of life, with little motivation. There were instances of the combined pressures leading to a downward spiral resulting in homelessness.

Mental health problems and welfare support

Respondents reported little or no state welfare support either during transition or in later civilian life, and relied on voluntary organisations. Some were unaware of their welfare entitlement, even many years after leaving, and recalled employment centres that were out of touch. Problems such as PTSD, depression and stress were cited, combined with high alcohol consumption over a prolonged period. The onset could be sudden and unexpected due to significant stressors, and could result on stress within the whole family and a change in behaviour. The result could be isolation, avoiding people and crowds, an aspiration to live in a small quite community and paranoia, lack of concentration, fearing for their own security or fearing a panic attack in public. For some the Armed forces would always incorporate a sense of survivor guilt; distressing memories of leaving others behind, a sense of

abandonment, and potentially an increase in risk taking behaviour such as driving recklessly. However, there was little insight in a group that felt weak in seek medical assistance.

When help was sought, certain GPs were identified as very good, especially ex-military doctors, who would refer appropriately to groups such as Combat Stress. Other GPs were less pro-active, focusing on pharmacological treatments. In medical consultations, these veterans would refrain from discussing their military experiences, especially traumatic events, fearing embarrassment. If referred to a specialist MH practitioner or psychiatrist they continued to desist from discussing their military history to healthcare clinicians who failed to enquire about their veteran status.

ARCHAEOLOGY

1. Access & Motivation

Access to the DAG activities were through a number of different routes including recommendations from organisations such as the Worldwide Volunteers; Blind Veterans, Blesma, Band of Brothers, military groups including Scotland Association for Mental Health, media including Soldier Magazine, recommendation from other participants, MH practitioners, affiliated University academics, and Facebook. Some had seen adverts, but these were perceived as only applying to veterans from recent campaigns. Motivation for attending was varied. Reasons given were: to access education; to test themselves; because the dig was local; to stimulate their mind, to get away from day to day pressures; or having retired, wanted to live their lives to the full or travel. Some had accessed a number of other veteran activities including karting, skiing and horseback UK. A common motivation was an interest in Archaeology. Operation NIGHTINGALE presented an opportunity to establish a foothold in archaeology for potential employment as excavation at sites such as Vindolanda and Waterloo were seen as enhancing an Archaeologists CV.

“Archaeology has always appealed to me, but I never thought in a million years that I would ever get a chance. I thought you would have to go to University and I thought I’d never do that. So I read the sight, saw all the pictures, saw all the vets there, and I thought bloody hell, I’ve got to try it. I was petrified of coming here, but when I got here it seemed alright. The Barracks were fantastic.” LL

Able bodied attendees were keen not to take the place of disabled. This sub group viewed themselves as “carers”, observing that their military service may have led to similar physical injuries if they had been unlucky and they gained reward from helping other disadvantaged teammates, viewing this as an opportunity to give something back. This sense of helping veterans was an extension of helping injured colleagues on deployments.

There were reports of being nervous of joining the group, however, once the dig commenced they formed a close team that maintained contact between events through social media such as Facebook. They acknowledged they felt safe in a military environment and returned for more exercises, feeling positive, and conscious to help others attending for the first time. Participants intended to raise the profile and funding of DAG events by lobbying organisations such as Help for Heroes, BLESMA, Veterans First, Poppy Scotland, and Band of Brothers. Attendees from the US and Australia held aspirations to develop similar activities in their own countries.

Education and employer interaction

There was a recognition either near the end of their service or when returning to civilian life that they needed to improve their academic profile and to access higher level education, and participants had already completed nursing and psychology courses, Masters Degrees and PhDs. Educational elements of the DAG events were well received because they tested the individual and stimulated their mind. Whilst academia was perceived as being very testing; motivation had resulted in a desire to undertake further education aided by scholastic support for funding, and was particularly attractive when employees of academic institutions showed an appreciation of the veteran status and a willingness to help.

Operation NIGHTINGALE offers an opportunity to potentially open up new career avenues by providing a chance to gain experience and build an occupational profile for commercial archaeology. Participants suggested that a possible development would be to invite employers to the events, and let them witness what the workforce are capable of. Thereby advertise the attributes associated with Service personnel such as reliability, trust worthy, hardworking, disciplined, educated; and use this to leverage future employment.

“Not only bring them along and say this is a fun adventure, but actually say we are going to help you get your life back on track. That is a huge selling point for the programme as a whole especially if they can get a few people out the door hired.” HH

2. Mental health

Engagement with the military

Archaeology has many similarities to military skill sets and these connections were perceived as providing an opportunity to re-engage with military duties. DAG is run like a military operation, and there is nostalgia at being back on a base, and attendees were working outdoors with “fresh air”, constantly active, living in tents or barracks, a field kitchen with military rations, orienteering skills,

responsibility, and leadership. This was attractive in that it provided structure, in what for some were disruptive and unstructured civilian existents. The event reminds people why they joined the Armed forces, a re-connection with their past and they found themselves enjoying and appreciating military camaraderie, generosity and a sense of pride. Several participants commented on not having to worry about being politically correct, implying military service makes people more robust and less sensitive; characteristics they take to civilian life. Some found it easier to mix with these strangers than their family and enjoyed the military “buddy buddy” system.

Mental health benefits & programme assessment

Many of the participants arrived at the DAG event with poor self-esteem and low mood. The activities introduced a positive activity into a participant’s lives, something to look forward to, leading to a sense of achievement; of doing well, and descriptions of improved self-esteem and self-worth.

“My first dig was aviation archaeology. I got some brownie point as I recognised a few parts. I looked at the pictures in the book, and I thought hang on a minute, and I looked at the exhibits, on the table and said that is the side of the fuselage, on the wing section. I feel chuffed in many ways. They’ve got forensic archaeologists, or doctor behind them, there’s plain old me just trying to get through life. ” EE

They felt that they were given responsibility and that their efforts were appreciated, whilst activating their minds and learning new skills. Everyone was judged equally, and despite some having MH problems or disabilities, all helped and respected each other. The event and mix of personalities was seen as self-developmental with a focus on what an individual can achieve, not what they can’t achieve.

“It’s helping because I am the one who is in control. It is good for your self-esteem because nobody says you can’t do that. All very much, how can we sort this out so that you can do it? It’s about how you can, and what you can. Not what you can’t, and what you are not allowed too. “ BB

Operation NIGHTINGALE was regarded as an excellent programme, and described as fantastic, of respondents “loving it” and producing a positive mood change. Some benefits were associated with the structure of the day, being outdoors, preferably in sunshine, thoroughly enjoying the activities and having fun. In addition to the sense of achievement, attendees reported doing something worthwhile, improving confidence, responding to responsibility, meeting other veterans whilst enjoying the camaraderie.

Involvement in the DAG activities improved confidence and projects a positive sense of well-being into the future. The independence, interaction with other veterans, change of setting and respite reduces stress and makes the individual more capable to face other demanding life events, proactive in moving forward and engaging in other interests. Some noticed different positives on each dig. These could be simple such as losing some weight, to having a chance for reflection, re-energising and being comfortable within a group provides inner strength. The exercises offered an opportunity for relief from daily pressures, where respondents addressed issues at their own pace, which for some resulted in the first time they had felt empowered to discuss distressing memories.

Operation NIGHTINGALE was not just the excavation period, it was a 24 hour activity with many benefits aligned to the social activities. Witnessing first-hand the problems of others provided for some a realisation of how lucky they were. It was also reported as beneficial to see others improving over the period of the dig. The improving confidence was projected to extending themselves outside of the events, and some viewed the exercise as life changing, producing their best mood in years, and a key positive event in their life. Some would like to permanently live in this environment.

“The benefits overall is that it gives me something to look forward too. Without a doubt. Gets me out of bed. If it wasn’t for this, I’d be sitting in my house, smoking, getting bored, wishing I had something to do. Regretting my life and the mistakes that I have made.” AA whilst LL reiterated *“Whilst I have been here I have been in the best mood I have been in for years. That’s fantastic”*

There appeared to be a positive therapeutic element, providing a stable foundation for mental wellbeing, although it was unclear exactly what this was. A theme that emerged was a sense of being respected, irrespective of their personal circumstances. Respect stemming from the title of being a veteran, of having served their country, and this delineated them from being a civilian.

3. Veterans and teamwork

The veteran identity promoted a strong bond. Respondents reported that when reunited with ex-colleagues the common military foundations and identity led to friendship and banter signified with a certain black humour. There was a perception that civilians treat veterans differently, and the DAG activities offered a rare opportunity to share opinions with a like-minded group. There was a distinguished difference with civilians, but a benefit was that the Operation NIGHTINGALE provided an interface between those who were socially isolated and a mature civilian community.

Individual space, understanding and tolerance

The group described gelling quickly; connections enhanced by a shared camaraderie and a sense of belonging. The military and DAG activities are grounded in teamwork, however, there were opportunities for individuals to have time personal time and be alone. DAG accommodates people joining for parts of the excavation, and this structure was one of the few areas where there were differing reports between the 2 phases of data collection. The theme from the first dig was that despite the changing dynamic, people arriving late or departing early did not appear to make a material change to the team bonding. The second event indicated that the introduction of new people could be disruptive. Social aspects were also vitally important, and being in the team socially outside of the excavation. Collective gatherings were a significant place to discuss the day's events, and whilst this included the public bar area; respondents were not coerced into drinking alcohol, and in all settings there was a sense of inclusivity. Participants recognised that traumatised people need time out, but keep an eye on them and welcome them back into the group:

"You see people who have some very obvious traumatic issues. If they want to go and do their own thing one night, everyone keeps an eye on them, and makes sure that they are going to be OK, but it's OK for them to do that. And then they are reintegrated back into the group the next day. And I don't know why everyone has been so conscientious, and I don't know if they are conscience of that, but they do it just naturally, it seems to be happening". HH

Teamwork was functional within the grouping of disabled and able bodied participants. There was trust in a military cultural, and Operation NIGHTINGALE provided an opportunity to learn / relearn socialising and communication skills. Some respondents welcomed civilian attendance, but veterans were viewed as more co-ordinated and effective. It was perceived that only fellow veterans could fully understand the stressors and problems of those who had served in the Armed Forces. This expressed itself in multiple mediums, and in instances of personality clashes, or dealing with someone who is difficult, then an understanding and tolerance, however uncomfortable. This acceptance stems from socialising and learning other people's stories and perceiving other people's challenges. The interesting conundrum was that although all were veterans, some had served for less than a year, and some respondents did comment that the event was not right for everyone and some attendee's presence was questioned.

4. Therapeutic environment and leadership

A key component in the success of DAG was related to the Directing Staffs (DS) positive leadership and management style. Participants recognised that the principal DS had excellent organisational skills, but tailored the overall programme to the participants' individual needs. If people wanted a break, they could, without feeling pressurised. The staff were always available to share concerns and

arranged activities outside of the archaeological digs. The relaxed atmosphere was especially conducive to the element of respite and was classed as therapeutic. It was seen as conveying the benefits of being on a military base but it was not militarised. It promoted autonomous decision making and empowered individuals to take control of their actions and contributions. Respondents highlighted the high level of care.

“And every time he sees me (Dxx) he says are you happy up here? Do you want to come down and do some digging for a bit? How is it going? Are you enjoying yourself? So you feel, it’s very empowering. It’s not oh she’s up there so we will just ignore her. “ BB

Leadership was also assumed by some of the participants, who had developed their attributes as Non Commissioned Officers, and used these skill sets within a perceived sense of duty to look after less abled members of the group. They also wanted to be made aware of those with long term MH issues so that they could provide more support or be less judgemental.

Challenges & Going Home

Certain challenges were highlighted. It was reported that some attendees are so keen to make a positive impression and return for future events that they refrain from offering even constructive criticism. There were reports of interpersonal conflicts, with contributing factors being the wide variation in age, type of military service or perceiving that others are not contributing. These clashes could present at social events. Some challenges were just practical issues such as bad weather or not being able to get a mobile phone signal. Being away from home, and missing their family could be unsettling. It was also physically challenging, especially for those with medical conditions.

“It’s the knees that go, my hands aren’t blistered but they are a little bit sore, because it’s constant. I do some gardening, but I do an hour a day or something. Where this is relentless. Pushing the boundaries. Buts that great, that is what we want.” II

It is a challenge to get the right mix within the excavation, for example able bodied, disabled and / or MH problems. Attendees reported difficulty in adapting to other people’s mood swings or individual’s appearing depressed or experiencing MH problems. Attendees who prefer isolation found working with others problematic and stressful. This was exacerbated when the group changed during the dig with introductions and departures. Some feared this activity would lead to a dependency on these events, and stop individuals from facing the challenges in their life.

A key component in the study was to explore the longer term effects of the activity and the impact for attendees when they returned home. The author was conscious that the event may be a highlight and

could have potentially negative implications. The majority reported that the positive experience associated with the DAG motivated them between events and promoted a healthier independent lifestyle, although this was not always the case when returning home which could be problematic leading to a lowering in mood.

“Yes, there is negative parts when I go home. All the fun and laughter scratching the surface goes away and I am left with an empty house..... I miss that camaraderie and the laughs. When you go back you think, is that it? Is that it for the day?” EE

CONCLUSION

This paper adds to the limited empirical research undertaken to explore the biopsychosocial benefits of engagement in outdoor activities as a means of supporting the military veteran community. Biological benefits included physical exercise which can result in improved body image, in this instance linked to reduced alcohol consumption. The psychological benefits were improved self-esteem, confidence, a reduction in stigma and motivation to seek help. The reduction in situational stressors associated with difficult life conditions also appeared to improve mood, and there was a clear benefit in being in a caring environment where other people actively paid an interest. There are comprehensive social benefits associated with being accepted as part of a team within a familiar military environment, which presented an opportunity to establish friendships and utilise military skill sets. With all these issues, further research is clearly required.

There needs to be an assessment of who will benefit. The policy of accepting any veteran onto the event results in a heterogeneous grouping ranging from veterans who had served in the Armed forces for a few months to attendees who had completed a full career, and the benefits may be better defined through the introduction of an inclusion and exclusion criteria. This could be broadened to define the mix of able bodied and disabled. There needs to be a better structure for personnel who have a negative psychological reaction, such as having a MH practitioner in attendance. This clinician could engage in the activities but offer help if required and signpost attendees to welfare support and NHS and / or Charities when appropriate. Acknowledging that pets are welcome would reach out to veterans who are isolated and avoid human contact. This relaxing and reflective environment in a military setting appears to construct a sense of personal safety and thereby offers therapeutic value. For the able bodied, this benefit expanded to giving something back in memory of injured colleagues. They adopted the role of “carer”, although it was not clear that those being cared for realised this was happening, or how they would have reacted if they were aware.

In developing a therapeutic environment, the attestations from the respondents indicated that archaeological activities are just part of the event, and equally important is the social interaction around the community events. Operation NIGHTINGALE can also offer a bridging environment with military peers and civilians convergent skills and interests. During some of the military based activities, Veterans realise that they have qualities and skills as good as any civilians, which can further build confidence. The military setting, shared identify including an understanding of nuances of language and the deployable arena appear to have wide ranging benefits. In particular, to encourage those who are isolated to engage, and utilise the shared empathy in a therapeutic perspective. Working outside, this socially excluded group appear to feel safe in discussing and engaging with their problems that the clinical settings with restricted time allocations and discussions with a stranger cannot replicate. This was reflected in respondents being keen to discuss traumatic life events, even after the author had stated that the aim was not to elicit traumatic incidents or cause distress through examining such events. However, this desire to resolve outstanding MH conditions, including in a group setting, offers a medium for treating MH disorders including PTSD.

A strategy to advertise and improve the profile of DAG is warranted. This should extend to engagement with individuals with influence in the veterans' agenda at national and international level. These developments would be better sourced by getting the event properly funded with potential support from other charities. This could be broadened to getting businesses engaged and attending and use the events as a springboard to get individuals back into employment. In this group, there was motivation for education and to pursue archaeology as a career. If an additional objective of the DAG is to get veterans back into work, then this research suggest that involvement in a particular activity (in this case archaeological but transferable to other employment) provides an experience and occupational profile that can open career avenues that are not rife with employees. This could be accentuated by supporting serving personnel to engage in different work experiences before they leave the Armed Forces. DAG, and outdoor activities present clear advantages to the veteran community and better harnessing of the therapeutic and motivational setting could lead to a significant improvement in their quality of life.

LIMITATIONS

The author's role as a military officer and the research cohort of veterans may have resulted in failing to clearly define the crucial positive impact of the friendly civilian participants, not least between younger veterans and students of a similar age.

References:

- Ashcroft, M., 2014. The Veterans' Transition Review. Crown. Available: www.veteranstransition.co.uk/vtrreport.pdf (Accessed 14 October 2015).
- Batham, D., Finnegan, A.P., Kiernan, M., Wall, C., Simpson, R., 2012. Factors affecting front line casualty care in Afghanistan. *Journal of the Royal Army Medical Corps* 158 (3), 173-180.
- Blind Veterans UK., 2015. Life beyond sight loss. Sports and recreation. Available at: <http://www.blindveterans.org.uk/how-we-help/how-we-support-blind-veterans/sports-and-recreation> (Accessed 14 October 2015).
- Bowler, D.E., Buyung-Ali, L.M., Knight, T.M., Pullin, A.S., 2010. A systematic review of evidence for the added benefits to health of exposure to natural environments, *BMC Public Health* 10:456 doi:10.1186/1471-2458-10-456
- Burdett, H., Woodhead, C., Iversen, A.C., Wessely, S., Dandeker, C., Fear, N.T., 2012. "Are you a veteran?" Understanding of the term "veteran" among UK ex-Service personnel. A research note. *Armed Forces & Society* 39 (4), 751-59.
- Cabral, P., Meyer, H.B., Ames, D., 2011. Effectiveness of yoga therapy as a complimentary treatment for major psychiatric disorders: A meta-analysis. *Primary Care Companion CNS Disorders* 13 (4) pii: PCC.10r01068. doi: 10.4088/PCC.10r01068.
- Charmaz, K., 2014. Constructing Grounded Theory, 2nd Edn. Sage, London.
- Crawford, M., Sharpe, D., Rutter, D., Weaver, T., 2009. Prevention of suicidal behaviour among Army personnel: A qualitative study. *Journal of the Royal Army Medical Corps* 155 (3), 203-207.
- Data Protection Act, 1998. Crown, London.
- Defence Archaeological Group, 2015. Defence Archaeological Group. At: www.daguk.org/ (Accessed 14 October 2015).
- Department of Veterans Affairs, 2004. VA/DOD clinical practice guideline for the management of post-traumatic stress. At: www.healthquality.va.gov/ptsd/ptsd_full.pdf (Accessed 14 October 2015).
- Duvall, J., Kaplan, R., 2013. University of Michigan. Exploring the benefits of outdoor experiences on veterans. Report prepared for the Sierra Club military families and veterans initiative. June. At: [https://content.sierraclub.org/outings/sites/content.sierraclub.org/outings/files/SIERRA_REPORT_6_13_Exploring%20the%20benefits%20of%20outdoor%20experiences%20on%20veterans%20\(1\).pdf](https://content.sierraclub.org/outings/sites/content.sierraclub.org/outings/files/SIERRA_REPORT_6_13_Exploring%20the%20benefits%20of%20outdoor%20experiences%20on%20veterans%20(1).pdf) (Accessed 14 October 2015).
- Emerson, D., Sharma, R., Chaudhry S., Turner, J., 2009. Trauma-sensitive yoga: principles, practice and research. *International Journal of Yoga Therapy* 19, 123-128.
- Engel, G.L., 1977. The need for a new model: A challenge for Biomedicine. *Science New Series* 196 (4286), 129-136.
- Finnegan, A.P., Finnegan, S.E., McKee, P., Ashford, R., Simpson, R., 2011. Serving within the British Army. Research into mental health benefits. *British Journal of Nursing* 20 (19), 1256-1261.
- Finnegan, A.P., Finnegan, S., Thomas, M., Deahl, M., Simpson, R., Ashford, R., 2014. The presentation of depression in the British Army. *Nurse Education Today* 34 (1), 83-91.

Finnegan, A.P., Finnegan, S., Bates, D., Ritsperis, D., McCourt, K., Thomas, M., 2015. Preparing British military nurses to deliver nursing care on deployment. An Afghanistan study. *Nurse Education Today* 35 (1), 104-112.

Fishing for Heroes, 2015. Fishing for Heroes. At: www.fishingforheroes.com (Accessed 14 October 2015).

Glaser, B.G., Strauss, A.L., 1967. The discovery of Grounded Theory. *Strategies for qualitative research*. Aldine, Chicago.

Hacker-Hughes, J., Cameron, F., Eldridge, R., Devon, M., Wessely, S., Greenberg, N., 2005. Going to war does not have to hurt: Preliminary findings from the British deployed to Iraq. *British Journal of Psychiatry* 186, 536-537.

Healing Waters, 2015. Project Healing Waters for veterans. At: www.projecthealingwaters.org/ContactUs.aspx# (Accessed 14 October 2015).

Horseback UK, 2015. HorseBack UK. At: www.horseback.org.uk (Accessed 14 October 2015).

Institute of Medicine, 2008. Treatment of posttraumatic stress disorder: an assessment of the evidence. Washington, DC, National Academies Press. At: www.nap.edu/openbook.php?record_id=11955 (Accessed 14 October 2015).

Institute of Medicine, 2012. Treatment of posttraumatic stress disorder in military and veteran populations: Initial assessment. National academies press, Washington DC. At: www.iom.edu/Reports/2012/Treatment-for-Posttraumatic-Stress-Disorder-in-Military-and-Veteran-Populations-Initial-Assessment.aspx (Accessed 14 October 2015).

Invictus Games Foundation, 2015. Invictus Games Foundation. www.invictusgamesfoundation.org/ (Accessed 14 October 2015).

Kiernan, M.D., Finnegan, A.P., Farrell, D., 2013. Role of the military community mental health nurse. *Nursing Standard* 27 (51), 35-41.

Mays, N., Pope, C., 1995. Qualitative research: rigour and qualitative research. *British Medical Journal* 311, 109-112.

Ministry of Defence, 2011. The Armed Forces Covenant. 05/11 Crown. At: www.gov.uk/government/uploads/system/uploads/attachment_data/file/49469/the_armed_forces_covenant.pdf (Accessed 14 October 2015).

Ministry of Defence, 2015. 2010 to 2015 Government policy: Armed Forces Covenant. May. At: www.gov.uk/government/policies/fulfilling-the-commitments-of-the-armed-forces-covenant/supporting-pages/armed-forces-community-covenant (Accessed 14 October 2015).

National Health Services Choices, 2015a. Healthcare for the armed forces community. At: <http://www.nhs.uk/NHSEngland/Militaryhealthcare/Pages/Militaryhealthcare.aspx> (Accessed 14 October 2015).

National Health Services Choices, 2015b. NHS healthcare for veterans. At: <http://www.nhs.uk/NHSEngland/Militaryhealthcare/veterans-families-reservists/Pages/veterans.aspx> (Accessed 14 October 2015).

National Health Service Health Research Authority, 2014. At: www.hra.nhs.uk (Accessed 14 October 2015).

National Institute for Health and Clinical Excellence, 2005. Post-traumatic stress disorder (PTSD): the management of PTSD in adults and children in primary and secondary care. NICE Clinical Guidelines, No. 26. London. At: www.nice.org.uk/guidance/CG26 (Accessed 14 October 2015).

Nimenko, W., Simpson, R., 2013. Rear operations group medicine: a pilot study of psychological decompression in a Rear Operations Group during Operation HERRICK 14. *Journal of the Royal Army Medical Corps* doi:10.1136/jramc-2013-000196.

Pleasance, C., Smith, J., 2014. "It's what we do and damn we do it well": Prince Harry brings Invictus Games to a close with star-studded concert...and even allows himself a birthday beer. *The Daily Mail*, 14 September. At: www.dailymail.co.uk/news/article-2755411/HRH-big-3-0-Harry-handed-commemorative-shirt-final-day-Invictus-Games-eve-30th-birthday.html (Accessed 14 October 2015).

Seal, K.H., Bertenthal, D., Christian, R., Miner, C.R., Sen, S., Marmar, C., 2007. Bringing the war back home. Mental health disorders among 103 788 US veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs facilities. *Archives of Internal Medicine* 167, 476-482.

Silverman, D., 2013. Doing qualitative research. 4th Edn. Sage, London.

Sundin, J., Fear, N.T., Iversen, A., Rona, R.J., Wessely, S., 2010. PTSD after deployment to Iraq: conflicting rates, conflicting claims. *Psychological Medicine* 40 (3), 367-382.

Team USA, 2015. US Paralympics. At: www.teamusa.org/WarriorGames (Accessed 14 October 2015).

US Air Force, 2015. Air Force Wounded Warrior. At: www.woundedwarrior.af.mil (Accessed 14 October 2015).

Veterans in Communities, 2015. Veterans in Communities: Return, belong, prosper. At: www.veteransincommunities.org/outdoor-activities.html (Accessed 14 October 2015).

Westlund, S., 2014. Field Exercises: How Veterans are healing themselves through farming and outdoor activities, New Society, Canada.

Wise, J., 2015. Digging for victory: Horticultural therapy with veterans for post-traumatic growth. Karnac, London.

Sample Group Demographics		
Gender	Male	86% (N=12)
	Female	14% (N=2)
Age	Range	23 to 62 years old
	Mean	45 Years old
Service	Army	79% (N=11)
	RAF	21% (N=3)
Marital Status	Married	36% (N=5)
	Single	29% (N=4)
	Separated	7% (N=1)
	Divorced	7% (N=1)
	Other	7% (N=1)
	Widowed	7% (N=1)
	Partnership	7% (N=1)
Parents	Yes	29% (N=4)
Length of Service	Range	1 - 45 Years
	Mean	11 years
Reason For Leaving	End of Service	36% (N=5)
	Pre Voluntary Release	21% (N=3)
	Medical Discharge	36% (N=5)
	Compassionate	7% (N=1)
Table 1		

Figure(s)

Highlight

The psychological benefits associated with the DAG activities were improved self-esteem, confidence, a reduction in stigma and motivation to seek help.

The reduction in situational stressors associated with difficult life conditions appear to improve mood, and there was a clear benefit in being in a caring environment.

There are social benefits associated with acceptance in a team within a familiar military environment, that established friendships and utilisation of military skill sets.

The relaxing and reflective environment in a military setting appears to construct a sense of personal safety and thereby offers therapeutic value.

Harnessing the therapeutic and motivational drive associated with DAG and other outdoor activities could lead to an improvement in the veteran's quality of life.