Social contexts and support needs for combat-injured veterans and their families: a short report from the ADVANCE-INVEST study

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Foreword



For more 95 years, Blesma, The Limbless Veterans, has stood alongside wounded veterans as they rebuild their lives after service. We have seen first-hand that recovery from serious injury extends far beyond physical rehabilitation. The journey from military service to civilian life is often complex, demanding resilience not only from the veteran but also from those who support them: families, employers, communities, and the charities that walk alongside them.

This report from the ADVANCE-INVEST study provides important and timely insight into that journey. Drawing on the experiences of hundreds of combat-injured veterans and their families, it highlights something that many of us working in the sector have long understood, successful transition is rarely achieved through clinical or statutory support alone. Meaningful employment, strong social networks, peer support, and family relationships all play a vital role in helping veterans find purpose, confidence, and belonging beyond military service.

The findings resonate strongly with Blesma's experience and its mission, to help injured veterans live independent and fulfilling lives. We see every day the transformative effect that connection with others who share similar experiences can have on an individual's wellbeing. Opportunities to participate in adaptive sport, adventurous activities, social events, and peer-led support programmes help veterans rediscover what is possible after injury. They rebuild confidence, reduce isolation, and create pathways to new opportunities and ambitions. These outcomes are not incidental; they are central to long-term recovery and independence.

The report also shines a welcome light on the role of families. Behind many successful transitions are partners, parents, children,

and carers who provide practical assistance, emotional support, and encouragement, often while facing significant pressures themselves. Their contribution is frequently overlooked, yet it is essential. The evidence presented here reinforces the need for services and policymakers to recognise and support the family unit, not just the individual veteran.

Equally important are the findings relating to employment. Meaningful work provides financial security, structure, identity, and a sense of contribution. While many injured veterans achieve success in civilian careers, barriers and misconceptions remain. Employers have an opportunity to benefit from the skills, determination, and experience that veterans bring, while ensuring that workplaces are flexible, inclusive, and responsive to the realities of living with serious injury.

As the generation of veterans injured in Afghanistan and other recent conflicts continues to navigate civilian life, this research offers valuable evidence to inform policy, practice, and future support. It reminds us that recovery is not simply about overcoming injury. It is about enabling individuals to thrive, maintain meaningful relationships, participate in their communities, and pursue fulfilling lives and careers.

Blesma is proud to have supported veterans throughout these journeys and welcomes the contribution this report makes to our understanding of what helps injured veterans succeed after service. I hope that the findings encourage continued collaboration between the charitable sector, employers, healthcare providers, policymakers, and families to ensure that those who have sacrificed so much for their country receive the support they need to flourish in the years ahead.

Vivienne Buck CBE
Chief Executive, Blesma, The Limbless Veterans

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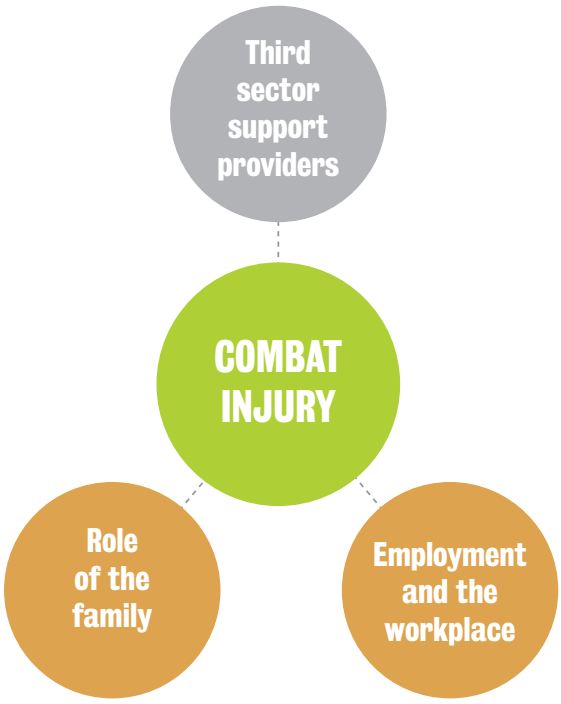
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Executive Summary

The conflict in Afghanistan (2002-2014) resulted in hundreds of serious injuries to UK Armed Forces (UKAF) personnel, necessitating their aeromedical evacuation [1]. The ADVANCE study[1] was initiated to determine the long-term health consequences of such injuries; the ADVANCE-INVEST[2] substudy examines experiences and outcomes of transition for this population, from which a series of reports have been published. Prior reports in this series have investigated the experiences of combat-injured veterans as regards medical discharge and the health support services provided to them [2, 3]. This report investigates combat-injured veterans' experiences and perceptions of their social contexts (e.g. their workplaces) and other sources of support (e.g. their family members and third sector support providers) and the support needs of the family members themselves.

This report used questionnaire data from over 500 ex-Service personnel who had sustained combat injuries, as well as 28 in-depth interviews with combat-injured veterans[3], supplemented by five interviews with their family members, regarding their perceptions and experiences of transition in the context of their injuries; for further details regarding the characteristics of the participants and the methodology used in this report, please see the Appendix. Domains examined in this report are summarised in Figure 1.

Figure 1 Summary of domains in this report



[1]The Armed Services Trauma and Rehabilitation Outcome (ADVANCE) study is a prospective cohort study examining the long-term health impact of sustaining a physical combat injury during deployment to Afghanistan (2002-2014; Operation HERRICK). For more information, please see the introduction.

[2]The Injured Veterans' Experiences of Transition (INVEST) study is a subsidiary of the core ADVANCE Study. It is a long-term project investigating the experiences and outcomes of combat casualties transitioning from military to civilian life.

[3]Interviews were conducted with 12 participants injured with limb loss, 12 participants injured without limb loss, four participants medically discharged from the comparison group and five family members.

One source of support for veterans originates from third sector support service providers; there are nearly 200 charities providing physical or mental health support to veterans [4] (though fewer than 20 provide clinical mental health treatments). Our findings suggest that adventurous group activities (e.g. international, adaptive cycling trips) provided by third sector support service providers can facilitate transition by improving the confidence of injured veterans in their physical capabilities post-injury, as well as expanding their networks and facilitating employment in the civilian sector.

Seventy-nine percent of the injured personnel in this sample were in employment. Employers and the workplace were perceived as important factors in transition to civilian life. Some participants reported concerns about whether their injury would prevent them gaining employment, maintaining employment, being promoted, and whether they would be viewed differently at work due to their injury. Some participants found the physical demands of work could exacerbate symptoms related to their injury (such as chronic pain). As such, it was perceived by participants that workplaces could support veterans in numerous ways – by providing veteran-specific health support, flexible work policies, or by not allowing the injury to affect professional experiences. Statistical analysis showed that those injured veterans in employment reported better health and wellbeing than those not in paid employment.

The third aspect of support investigated here was that provided by family members. Seventy-eight percent of the injured participants were living with a partner, with another 8% living without a partner but with friends or family. Some family members provided informal care when injured veterans returned home and, in some cases, fulfilled caregiving roles related to physical health. From a mental health perspective, family members helped provide surveillance of symptoms. However, participants sometimes found that such informal care could negatively impact upon the family member by placing demands on them that they found difficult to fulfil. Injured participants who lived with and felt supported by their families reported that this had a positive impact on their wellbeing; this may partly explain the observation that those living alone had the highest rates of not being in paid employment.

Our survey and interview data from over 500 injured personnel, and interview data from five family members, suggest the following steps may be worth considering (Table 1).

Table 1 – Summary of recommendations

	Recommendation	Primary audience
1	Encourage injured veterans to make best use of both physical activities and career development opportunities provided by the third sector	MOD and third sector support service providers
2	Raise awareness among third sector support service providers of the importance of a complete transition to a civilian identity	Third sector support service providers
3	Perform a multi-charity evaluation of long-term impact of stand-alone physical events provided	Researchers and third sector support service providers
4	As well as providing advice and guidance regarding gaining employment, institutions which support unemployed injured veterans should also be coordinating with health and wellbeing service providers	MOD, Career Transition Partnership (CTP) and third sector support service providers
5	Improve awareness among employers, general practitioners and third sector providers of the occupational health implications of chronic pain and other sequelae of combat injury, and how best to support injured veterans (e.g. via flexible work policies)	Department of Health, third sector support service providers and employers of veterans
6	Family members of injured veterans to be offered consistent care tailored to their needs and preferences. Some specific forms of support that may be beneficial include appropriate educational materials on how to talk to children about physical injury, with a focus on breaking news to them; a deeper understanding of and more proactive support provision to alleviate the administrative, caregiving, parental, domestic and logistical burdens and demands that can fall to singular family members when their loved one sustains a physical combat injury	MOD and third sector support service providers
7	To ensure provision of psychoeducation and peer support for family members of injured veterans covering topics such as chronic pain, caregiving (e.g. manual handling), mental health diagnoses (e.g. PTSD)	CTP and third sector support service providers



Report

Introduction

The conflict in Afghanistan (2001-2014) resulted in unprecedented levels of UK Armed Forces personnel (UKAF) returning from the battlefield with injuries that would previously have been unsurvivable [5]. These individuals required substantial, immediate medical support for their traumatic injuries, and now require continuing support in the longer-term [6]. In addition to formal medical provision and support provided by the chain of command (e.g. the Veterans Welfare Service [7]), support is provided by employers, the third sector and families. Over 100 Armed Forces charities have been identified as providing physical health support [8] and 76 have been identified as providing mental health support (though fewer than 20 provide clinical mental health services) [4]. When UKAF personnel have been wounded, injured or become sick, family members may provide care during their recovery in an unpaid capacity and in diverse environments including hospitals, inpatient rehabilitation centres, in the community and at home; under such circumstances, family members can be considered informal caregivers [9].

The ArmeD serVices trAuma rehabilitatioN outComE (ADVANCE) study is a prospective cohort study examining the long-term health consequences of sustaining a physical combat injury during deployment to Afghanistan (2002-2014) [10]. The study is a collaboration between King's College London, Imperial College London and the UK Ministry of Defence. The aims of the study are to identify adverse medical and psychosocial outcomes among combat casualties and to use the evidence generated to influence future care and identify and moderate adverse outcomes following transition.

The ADVANCE-INVEST (ArmeD serVices trAuma rehabilitatioN outComE – Injured Veterans' ExperienceS of Transition) substudy was formed to investigate the transition from military to civilian life among participants in the ADVANCE study with a focus on employment, physical and mental health and wellbeing. The project comprises a statistical data analysis to examine transition outcomes and their potential risk and protective factors, and a qualitative data analysis to understand how the experience of transition is affected by battlefield injury. It synthesises the data collected by the ADVANCE study, in combination with a systematic review [11] to make holistic recommendations on how injured and non-injured veterans and their family members manage these experiences and what support might be useful to them.

This report is the third in a series of reports arising from the work of ADVANCE-INVEST; previous reports have focused on the medical discharge process for those injured in combat, and the medical and physical support available to them. This short report presents findings relating to the ways in which transition is facilitated, hindered or impacted by informal support providers. Drawing from quantitative and qualitative data generated by the study, we identified three key domains: third sector support service provision, civilian employment and the role of the family in transition of combat-injured veterans.



Methods

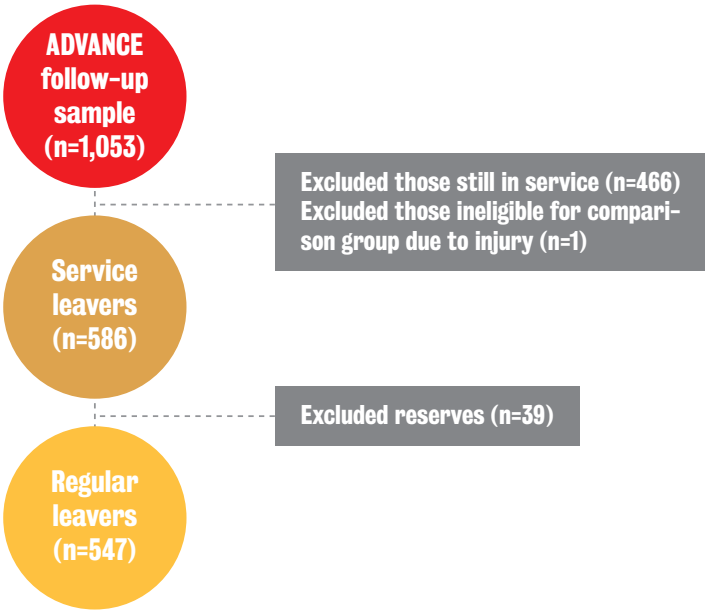
The ADVANCE cohort was established to investigate the long-term physical and psychosocial outcomes of UKAF personnel who sustained a combat-related physical injury while on deployment in Afghanistan. The ADVANCE cohort comprises of an injured group and an uninjured comparison group. For additional details on the composition of the ADVANCE and ADVANCE-INVEST participant groups, derivation of quantitative variables, and qualitative methodology, please see the Appendix of this document.

In brief, the injured group consists of 579 participants who sustained an injury whilst on deployment to Afghanistan (the "injured group") and 566 participants who deployed to Afghanistan but did not sustain such injuries (the "comparison group") [5]. Baseline data collection for the ADVANCE study began in 2015 and ended in 2020; the first wave of follow-up data was collected between May 2019 and August 2023, comprising 526 in the injured group and 527 in the comparison group. All participants were male, as during the period of conflict, women were not eligible for front-line duties.

The ADVANCE-INVEST study commenced in 2022, to examine transition from military service to civilian life. The ADVANCE-INVEST sample included in this report comprises 547 ADVANCE participants who had left the UKAF (excluding those who served as a reserve[4]) at the point of follow-up data collection (Figure 2). One hundred and fifty-one of the ADVANCE-INVEST sample were from the comparison group, while 396 were from the injured group. For details on the composition of the ADVANCE-INVEST sample please see Table 3 in the Appendix.

[4]Reserves were excluded as they were still part of civilian culture and labour market during service, and hence did not experience transition in the same way as those who served as regulars.

Figure 2 – Deriving the sample used in this report



One key outcome of interest from a transition perspective was whether participants were in paid employment in the civilian sector. Those who were in paid work were categorised as "employed"; and all other responses (seeking work, unable to work due to ill health, in full-time education, etc.) were categorised as "not economically engaged". We excluded those who had retired from paid employment as the key outcome was re-employment in the civilian labour market and retirees have left the labour market. The final quantitative sub-sample used specifically for the employment-related analysis comprised 534 individuals.

Another outcome of interest was subjective health and wellbeing. We used self-reported health from the EuroQoL EQ-5D Visual Analogue Scale [12] which asks participants to rate how good their health is on that day, providing a range of 0 ("the worst health you can imagine" to 100 ("the best health you can imagine").

We analysed how these factors related to social/family support by generating a variable for who they lived with; those who reported living alone were classified as "alone", those living with a partner as "living with partner", and those not living alone but not living with a partner were classified as "living with other(s)" (the "others" mostly consisting of other family members).

To provide a holistic understanding of the transition experiences of this sample, a subset of ADVANCE-INVEST participants was randomly selected for in-depth, semi-structured qualitative interviews. Online interviews were conducted with 28 ADVANCE-INVEST participants: twelve ADVANCE-INVEST participants who were injured and sustained limb loss; twelve ADVANCE-INVEST participants who were injured but did not sustain limb loss; and four ADVANCE-INVEST participants from the comparison group who were medically discharged (Figure 3). In addition, five family members of veterans were interviewed; for further details of this sample please see the Appendix.

Figure 3 - Qualitative interview participant sample (n=28)



Interviews with participants and their family members were conducted between 3rd November 2022 and 21st February 2024, audio recordings were transcribed, redacted and pseudonyms were applied to all transcripts. For more details on this sample, its recruitment, and qualitative methods used please see the Appendix.

The authors (HB and AV) convened to discuss and synthesise findings from both the qualitative and quantitative components. In conjunction with the study Principal Investigator (NTF), recommendations were developed as a result of these discussions, with the aim of identifying the audience to whom these recommendations should be best directed. Whenever relevant and possible, the authors sought advice from subject matter experts and practitioners to hone the recommendations made and align them with current associated policies and practices.

Ethical approval

The ADVANCE Study has full ethical approval from the UK Ministry of Defence Research Ethics Committee (MODREC; protocol No:357/PPE/12). All participants gave written informed consent. Ethical approval for the qualitative interviews was granted on 14.12.2022 by King's College London, Research Ethics Office – Reference Number: RESCM-22/23-28495.



Results

Our results suggest that different aspects of injured veterans' social environments supported them to transition into a satisfying and sustainable civilian life. Stemming from third sector support service provision, adventurous group activities (e.g. international, adaptive cycling trips) generated self-confidence and independence for injured veterans whose self-belief had been negatively affected by their injury. These events, often provided relatively early on along the recovery pathway, were felt to be catalytic, creating the conditions for renewed feelings of agency and camaraderie for those who took part in them.

Supportive employers and workplace cultures were perceived by injured veterans to be important factors which could enable their successful transition to civilian life. Given that participants held concerns about the negative impact their injury(-ies) could have on their ability to attain and maintain careers that felt meaningful and viable to them, employers who did not discriminate on the basis of physical ability but who supported injured veterans to fulfil their potential in their profession, were perceived as enabling.

Figure 4 – Themes and sub-themes identified in the qualitative analysis

Third sector support service provision	Transition to civilian employment	The role of family in veteran transition
• Recovering veterans felt self-confidence was improved by taking part in adventurous events • In some cases, third sector support provision was seen to hinder a transition to a fully civilian life	• The role of injury in acquiring civilian employment • The role of injury in maintaining civilian employment • Family concerns that injuries may jeopardise veterans' employment • Support for injured veterans in civilian workplaces	• Being discharged from military allowed families to spend more time together • Families could help injured veterans transition socially • Family members could play an essential caregiving role • Further support needs for families of injured veterans • Injured veterans advocated for more support for family members

Family members were largely, but not always, deemed to be a crucial part of injured veterans' recovery from their injury and their transition into civilian life. Family members supported injured veterans via a multitude of ways by providing physical care (e.g. extensive manual handling); psychological support (sometimes provided with the help of their wider family); care of other dependants (e.g. single parenting); administering domestic activities (e.g. moving house); and assistance into civilian professions (e.g. sharing professional networks and actual employment).

Third sector support service provision

Perceptions of support programmes

Within our sample, several injured veteran participants had taken part in adventurous events, organised by third sector support service providers (e.g. Blesma's adaptive cycling events). Injured veteran participants felt these events could be transformative as they helped them reclaim confidence in their newly disabled bodies and what they were still able to achieve. Injured veterans found that such events also fostered agency by promoting independent travel, sometimes to international locations, which could support their transition by paving the way for future civilian work-related travel:

> *"I think the significance of that [skydiving trip] for me was that was probably, like even including all the stuff that I did in the military it was probably like the, at the time of my life it was probably the biggest sort of physical achievement of my life and I think that that was quite eye-opening in terms of what I was still capable of, so I think that that sort of broadened my ambitions slightly in life… they do encourage quite a lot of independence on them sort of trips as well… I didn't think I could do but it was actually quite a sense of achievement getting it all done… everything around that trip helped me realise a lot about myself… It was a life-changing experience." (Ronan, injured with limb loss)*

Injured veterans reported that third sector support providers also helped them to identify new endeavours that were appropriate to their capabilities and brought them satisfaction, considering their new physical limitations:

> *"I think a lot for veterans is, it's having that thing. 'What is it that makes you tick?' 'What is that passion bit?' That was golf and until it wasn't golf and now it's football coaching but it's like I've tried a bit of skiing, I've been diving, I've been deep sea fishing in Alaska. I've tried plenty of stuff and had plenty of doors open through the various different charities, another charity called Blesma as well and it's through a bit of trial and error, I've landed into the thing that actually I really do enjoy doing, which is the coaching." (Andy, injured with limb loss)*

As well as extra-curricular activities, some injured veterans reported that third sector support service provision gave them opportunities to try different career options, which helped them feel informed as to which career might be the best fit for them:

> *"I did my game keeping, I did my land management things and got Help for Heroes, there was workshops up in Scotland for the Poppy Appeal so, we were all you can do workshops up here." (Luke, injured with limb loss)*

Some participants found third sector support services helpful in locating career training and access to relevant professional networks which facilitated their transition. This support enabled them to go into careers they wanted to have, and which they could meet the requirements of, despite their physical limitations:

"That's when the Poppy Factory comes into it… They got in touch with me… and he said, 'What do you want to do?' I said, 'A driving job'… 'Or lorry work'… So, I told the Poppy Factory that and then they got me through my Class 1. They went to a job festival where people tell you about their jobs and then they got back to me and said, 'This guy wants to speak to you from this driving company'. So, I went and spoke to him… and I started a week later. (Grant, injured with limb loss)

Perceived barriers to complete transition to civilian life

The way that third sector support services encouraged and celebrated the physical achievements of seriously injured personnel could be experienced as a source of inspiration and motivation during stages of physical recovery for this group. However, in some cases, extensive involvement with third sector support service provision was viewed negatively by participants and as not culminating in a complete transition to civilian life:

"We used to call them like the, 'Help for Heroes gang' that was getting all of the funding and all over the posters and all that sort of stuff and there was like the Battle Back thing which I did get involved with briefly but again, it was just a lot of schmoozing… Socially I didn't want to be there. So, for me… I wanted to get up and about on my limb as soon as I could walk without a walking stick… I just wanted to start my life again." (Ronan, injured with limb loss)

Such initiatives were sometimes perceived as not being representative of the reality for some who were injured in combat, and those injured veterans who did not want to be viewed as 'professional injured soldiers':

"Some people leave, don't they, they become, I call them, 'professional events goers'. You see them in the same pictures. They might be a member of [military charities supporting wounded UKAF personnel] and then they just bounce between each charity but then you get the other people like me, who just go to work but get a normal life." (Jack, injured with limb loss)

By contrast, facing the reality of the often mundane, demanding and stressful life of being a civilian in a civilian workforce was an aspect of transition that was felt to be a necessary by those who sought a 'full transition' into civilian life:

"I've got lots of friends I see and they do lots on social media and they do lots of fundraising and that's great but that isn't a transition. That is not and someone would have to convince me otherwise a full transition into civvy street because you are still in that blanket, still in that world. You are not really facing the challenges and all the hassles and just normal everyday life you get in a normal job… for me, it just doesn't feel like a full transition." (Joel, injured with limb loss)

Recommendations

1. MOD and third sector support providers: Encourage injured veterans to make best use of both physical activities and career development opportunities provided by the third sector.
2. Third sector support service providers: Raise awareness among third sector support service providers of the importance of a complete transition to a civilian identity.
3. Researchers and third sector support service providers: Perform a multi-charity evaluation of long-term impact of stand-alone physical events provided.

Transition to civilian employment

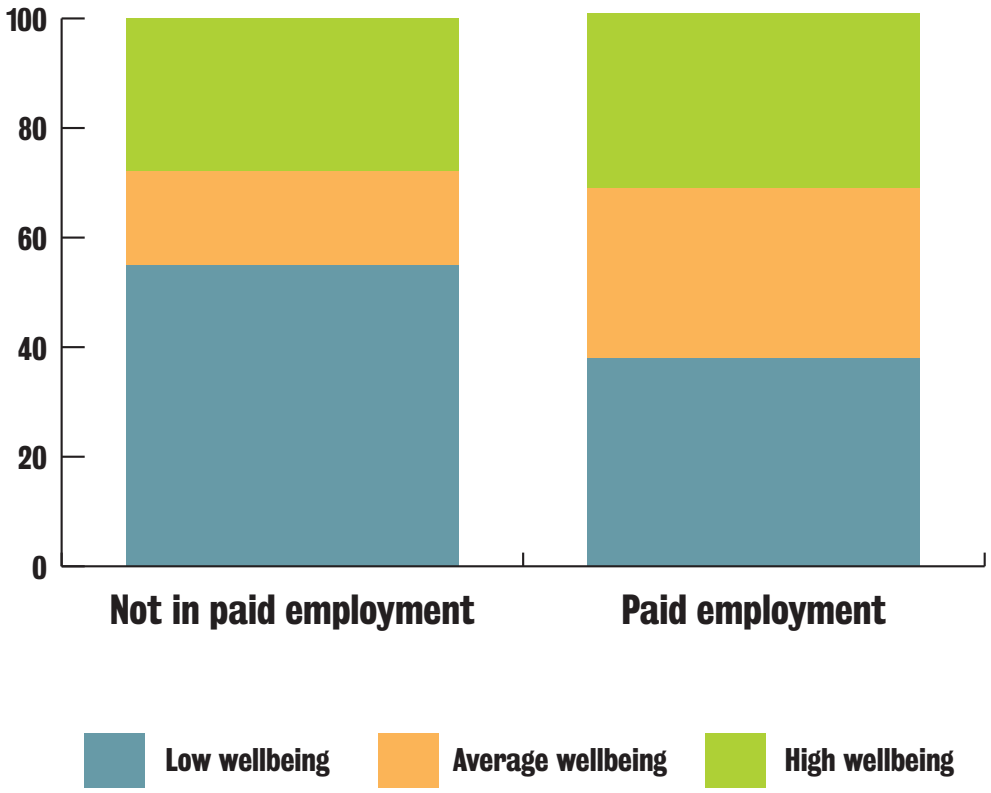
The role of injury in acquiring and maintaining civilian employment

Injured veterans who were in paid employment self-reported statistically better[5] health and wellbeing; those not in paid employment were more likely to report low wellbeing compared to those in paid employment (Figure 5).

Some veterans experienced a loss of self-esteem after their injury and medical discharge had occurred. In some cases, this dip in confidence was related to the change in role they felt they might play in their family post-injury, in particular fears around fulfilling their role as the family breadwinner:

"I was in and out of a wheelchair for quite a bit and that sort of knocked me confidence as well thinking that… 'Am I going to be in a wheelchair for the rest of m' life?' and I thought, 'Well, what sort of burden am I going to be to me wife and kids? What am I going to be able to do for a jobwise?' … It was quite hard going through all that." (Damien, injured with limb loss)

Figure 5 – Veteran sample self-reported health and wellbeing by employment status (n=547)



[5]*Non-parametric test of medians, Fisher's exact p-value 0.019*

Being employed in a role that they felt was making a valuable contribution to society was felt by injured veterans to be key, in order not to feel undervalued, when separated from a military identity and related roles which had provided them with self-esteem, validation and confidence. Having sustained a double loss of able-bodiedness and a career in the military, some veterans experienced the demands of seeking employment in civilian roles hard to endure. A lack of confidence could relate to assumptions about how others viewed their physical limitations:

"I applied … at least a dozen or two and had absolutely no responses whatsoever. Obviously, at this point, I'm a cripple without any qualifications … I'm not joking when I say you get put on the scrap heap because that is people's expectations: you are just going to rot the rest of your life in this house or somewhere and your days of an active participant in society are gone." (Henry, injured with limb loss)

Even once employed, concerns about their physical health and capacity to fulfil their professional obligations could arise for injured veterans when the civilian role they had found exacerbated the symptoms related to their injury:

"I was pulling cables through small … holes in the underground … You can imagine what went there; my back went about ten times." (Paul, medically discharged from comparison group)

Some veterans found that the nature of their injury meant that they were unable to be promoted at work, which could lead to less progression in terms of professional development and pay:

"Well, it [my injury] does stop me from being able to progress because in tree surgery there are two roles … There's one where you are groundsman when you are on the ground and you are clearing up all the mess and what I really would have wanted to do and what I used to do was be a climber, where you are up the tree and you are chopping the branches down. But … There's no way I can safely be a climber now because my left hand I can't support my weight. So, it does stop me from progressing and being a climber as well you get double the wages as well. It would be a lot better money if I was able to climb but I can't." (Jonas, medically discharged from comparison group)

The type of injury sustained by participants, and the degree to which it had healed, was felt by participants to decrease the extent to which it impacted upon their career as a civilian. Some participants – particularly those whose injuries, whilst serious, had largely resolved – found their injury played a minimal role in their ability to fulfil their professional commitments and did not hamper their ability to be hired or promoted at work:

"It's [my injury] not affected me in any way really apart from having to tell the story over and over again with other people … Physically no, absolutely not no. Mentally, no. No, it hasn't. I was still kept in work because I came away from offshore and did rope access on railways then we were classed as key workers. That was a very physical job up and down rocks, abseiling and then stuff like that and then having to climb steep embankments. My injury didn't affect me again there … it didn't stop me working." (Mike, injured without limb loss)

Family concerns regarding employment of injured veterans

Family members sometimes had concerns about the physical deterioration of their injured loved ones and the implications this may have for their physical health, mental health and financial stability:

"Well, the worry is that how long my husband would be able to work for before he physically can't do it? That's a worry because he needs to keep busy and active and working for his mental health and mind. So that's a worry. How many years before his other leg is no good?" (Karen, married to a participant injured with limb loss)

Family members witnessed the impact that certain job roles had on veterans' pain levels and bore the concerns about the viability of these roles and how they impacted upon family life as well as their financial planning:

"I think more for us it's more like thinking financially ahead just in case there does come a day where he can't work anymore. So, we just try and plan ahead in that side of things with trying to get the mortgage paid off early if we can and make sure we try and put a bit away. All that kind of things of just in case anything happens and then we lost his wage." (Sophie, partnered with a participant injured without limb loss)

Family members expressed witnessing the negative impact that their loved one's injury could have on their work life and how certain professional roles exacerbated their pain levels. Sometimes family members and their wider community found it wearing to be on the receiving end of the injured veteran's anger, which was expressed as a result of chronic pain, over long periods of time:

"So, he was really working, doing long hours, being on his foot all day … He'd go to his mum and dad's house, have a moan at them and then leave … We'll be at festivals outside and he'll struggle and then he'll be limping the rest of the day. It then puts him in a bad mood and can affect other people around him because he's obviously not from his own fault but it does make things a little bit difficult sometimes." (Sophie, partnered with a participant injured without limb loss)

Support for injured veterans in civilian workplaces

Whilst some participants felt their (potential) employer saw their injury(-ies) as a barrier to employment, others had found their employers treated their injuries as invisible and did not give them the impression that their injuries would prevent them from being a valued employee:

"You don't want the disability to become an issue. Have they had conversations and spoke about it? Probably, I'm sure. Have I ever seen or heard any of that? No. And that works for me, that's what I want … yes to see value for what you do. You'll see on my timeline just gradually working my way up. Different roles. I love it. I wouldn't go anywhere else. It's giving me everything that I need at the moment, it's great!" (Joel, injured with limb loss)

When participants articulated what made their civilian workplaces and cultures feel supportive, they spoke of cultures which understood veterans and military-related physical and psychological injuries. They also referenced resources in place to support them, which included provision for mental health support, flexible working and an understanding of the impact of their physical injury and the adjustments which may need to be made accordingly:

"The FCDO has a really good one [a mental health programme], it has two actually. It runs daily mental health news bulletins that come out and update. It has a veterans' group and a veterans mental health team but it also has an outsourced mental health, professional, outsourced mental health team that you can contact any time … They just let me go home or if I've got a migraine I can just go and find a dark room and sit in a dark room. Or, if I get up in the morning and it's really bad they'll just say, 'Don't come in. Work from home if you can. If you can't don't worry about it don't log on'. … The organisation as a whole is very supportive of disabled people in general, veterans in general." (Harry, injured without limb loss)

Participants were of the opinion that employers who endorsed flexible working created roles which they could execute, whilst managing their injury. For those participants for whom this was the case, it was felt that this led to fulfilling and sustainable employment:

"It's probably the longest job I've had apart from the Army ... The money here is fantastic, I've moved house to a bigger house now, I've got a bigger and better car and I like the job I do. I go out on site, I plan and stuff back in the office, I'm here, there and everywhere. I can work from home. It's flexible. No one questions me where I'm going. I always get the work done." (Tom, injured without limb loss)

Recommendations

4. MOD, CTP and third sector support service providers: As well as providing advice and guidance regarding gaining employment, institutions which support unemployed injured veterans should also be coordinating with health and wellbeing service providers.
5. Department of Health, third sector support service providers and employers of veterans: Improve awareness among employers, general practitioners and third sector providers of the occupational health implications of chronic pain and other sequelae of combat injury, and how best to support injured veterans (e.g. via flexible work policies).



The role of family in veteran transition to civilian life

Most participants, irrespective of their injury status, lived with partners (Figure 6). There was no statistically significant difference between injury groups and their living situation; meaning that the injury did not seem to make it either more or less likely overall that injured veterans, with or without limb loss, were living alone.

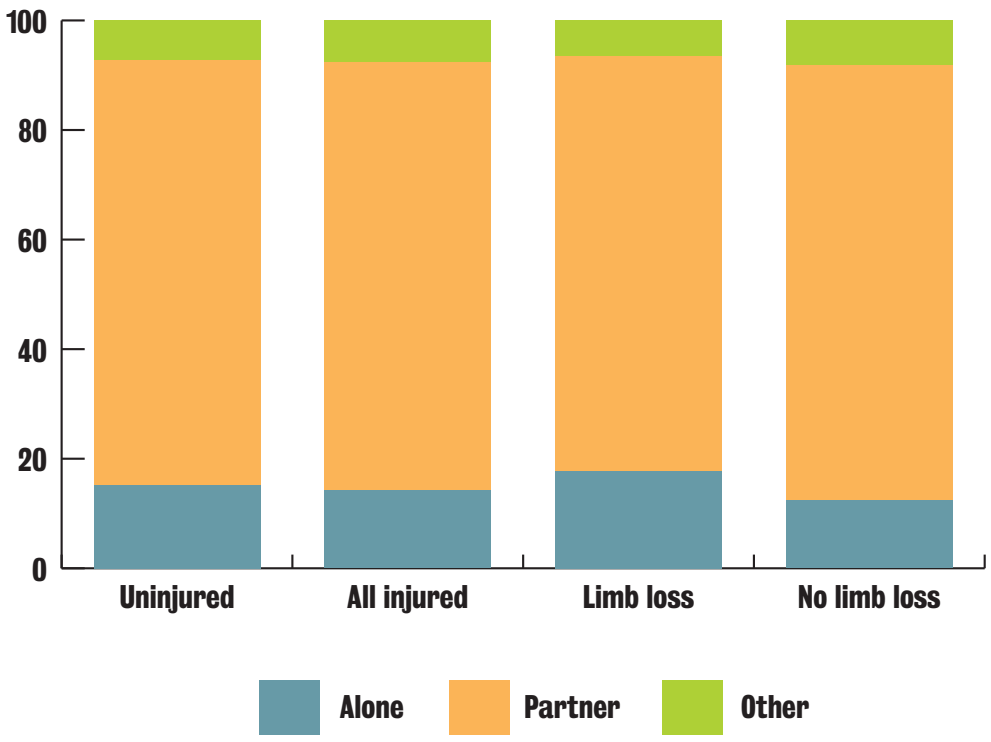
Changes in social contexts

In some cases, once military personnel had been discharged, they and their family members had the opportunity to spend more time together than they had while they were employed by the military:

"I think she's probably grateful more to have me around more. I don't know she might say differently. But I think she's more grateful to have me around more and I'm there and I'm more involved in the kids' lives because that first ten years once the kids were born it was mad with all the deployments and all the training and all the courses you just weren't there. Whereas now you are … She could do without me don't get me wrong, she could absolutely nail this all without me but yes, I think it's nice to have teamwork." (Joel, injured with limb loss)

Despite the seriousness of their injuries, both veterans and family members expressed

Figure 6 – Living situation by injury group within veteran sample (n=547)



gratitude for the physical presence this afforded and, in some cases, the benefit of being able to parent together:

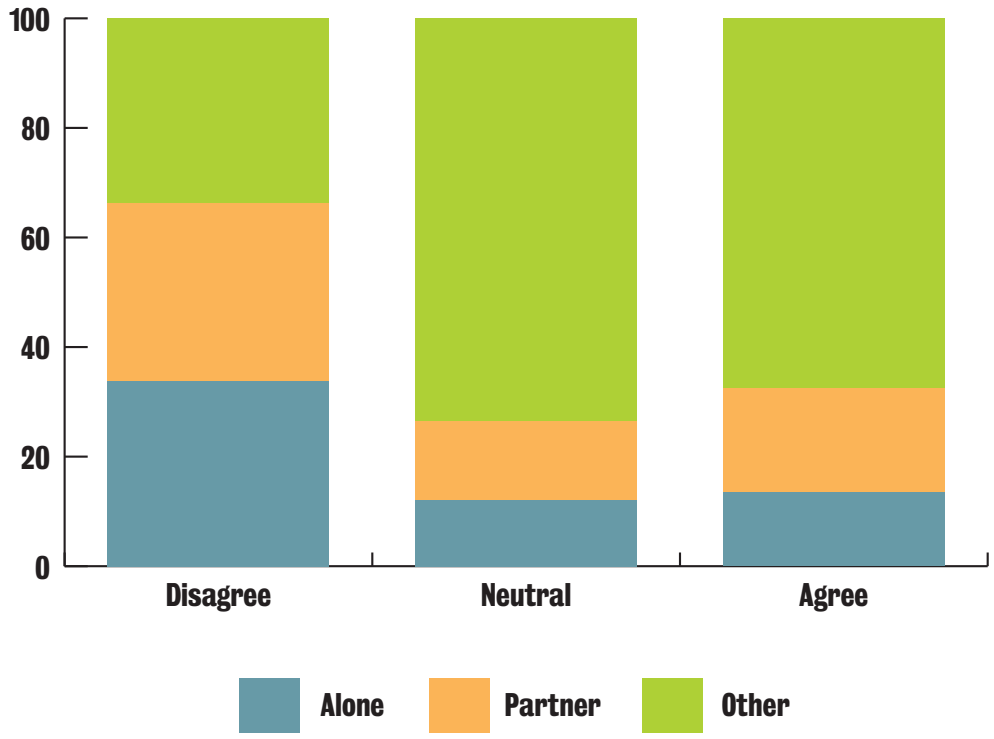
"I did have an element of relief that he was leaving the Army. My daughter was about to start primary school. I didn't really want to do the moving every two years with children. I definitely didn't want to do boarding school and the routes that some people go down when they are in the military and I think we would have ended up putting a pin in a map and making a home that he came back and forth to depending on where he was based because I think that's where our heads were at. So actually, really strangely coincidentally that he was medically discharged around the time that I was worrying about all of these things was a huge relief." (Suzie, partnered with a participant injured without limb loss)

For those injured veterans who lived with family, families were part of the social context in which they underwent transition. When injured veterans experienced their family members to be supportive of them after they had left the military, this in turn facilitated their transition more generally:

"Thankfully, had a loving and supporting family around me that made me and offered me an opportunistic view. I think that definitely plays a part in my transition." (Lance, injured without limb loss)

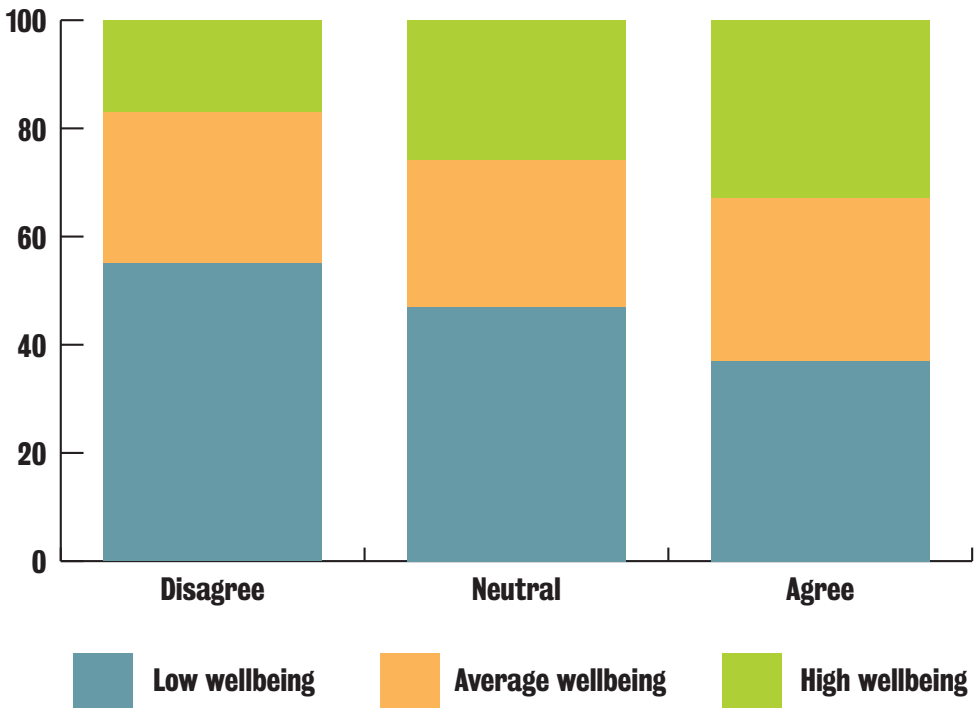
Living situation was related to perceived support from families; those who lived alone reported receiving less support from the family (Figure 7).

Figure 7 – Responses to "I get the emotional help & support I need from my family" by living situation for veteran sample (n=547)



These aspects of perceived family support were statistically significantly[6] related to self-reported health and wellbeing; those who agreed with the statement "I get the emotional help & support I need from my family" reported higher levels of health and wellbeing, while those who disagreed reported lower levels (Figure 8).

Figure 8 – Reporting low, average and high wellbeing by response to the question "I get the emotional help & support I need from my family" among the veteran sample (n=547)



[6]Non-parametric test of medians p-values (Fisher's exact) < 0.05 for all relationships

Perceived family support factors may also affect wellbeing of veterans. There was a small but statistically significant difference[7] in self-reported wellbeing and whether participants were living with family, with those living alone less likely to report high levels of self-rated wellbeing (Figure 9).

Sometimes, family members highlighted to their injured loved one the norms of civilian society. In doing so, family members facilitated the injured veteran's acknowledgement of their current state and motivated them to seek help to temper some of their responses:

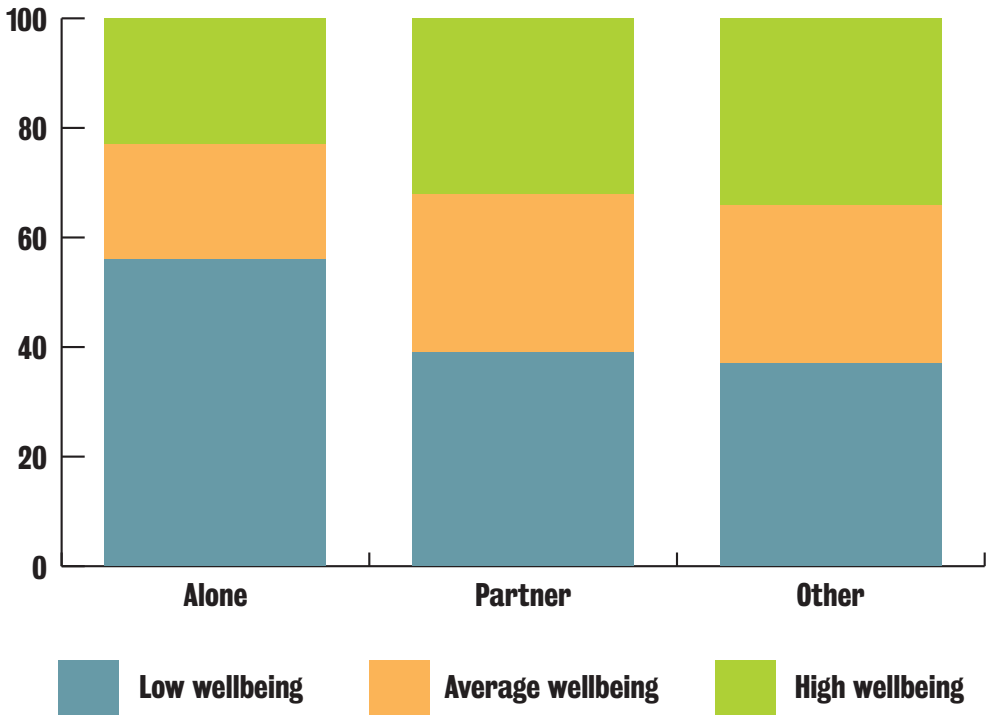
"I had this argument, and I broke my wrist because I punched a bin and then I drove my car for a few hours and went to A&E. Once I got home the next morning and I broke a bone ... And that was the moment for me that actually what my wife had been saying to me and it was like, 'That's not a normal reaction'. So, that was the moment for me that made me realise that I need to go and get that sorted." (Andy, injured with limb loss)

Family context was important for transition into the workplace. Those injured veterans who lived alone were more likely not be in paid employment[8] (Figure 10, overleaf).

Participants themselves sometimes acknowledged the role that their family members played in helping them adjust to being employed by a civilian employer and to realise that they may need to change their behaviour:

"I left the military, I mean silly little things like I'd turned up on day one in a suit and a tie and the Managing Director came over and said, 'Tomorrow when you come in, could you turn up in just trousers and a shirt because you are

Figure 9 - Self-rated health and wellbeing by living situation for veteran sample (n=547)



making the whole workforce look untidy'… He wasn't joking. So, my expectation of what I was entering into was wrong and it was very much, 'Me and not them' but I came home, and my wife has always been brilliant at grounding me and I said, 'They're all really weird' and she said, 'All of them?' I said, 'Most, yes'. She went, 'Could it be you?' I went, 'Oh yes, oh yes, oh yes wise words wife'. So, I won't forget that statement." (Lance, injured without limb loss)

Family members and caregiving

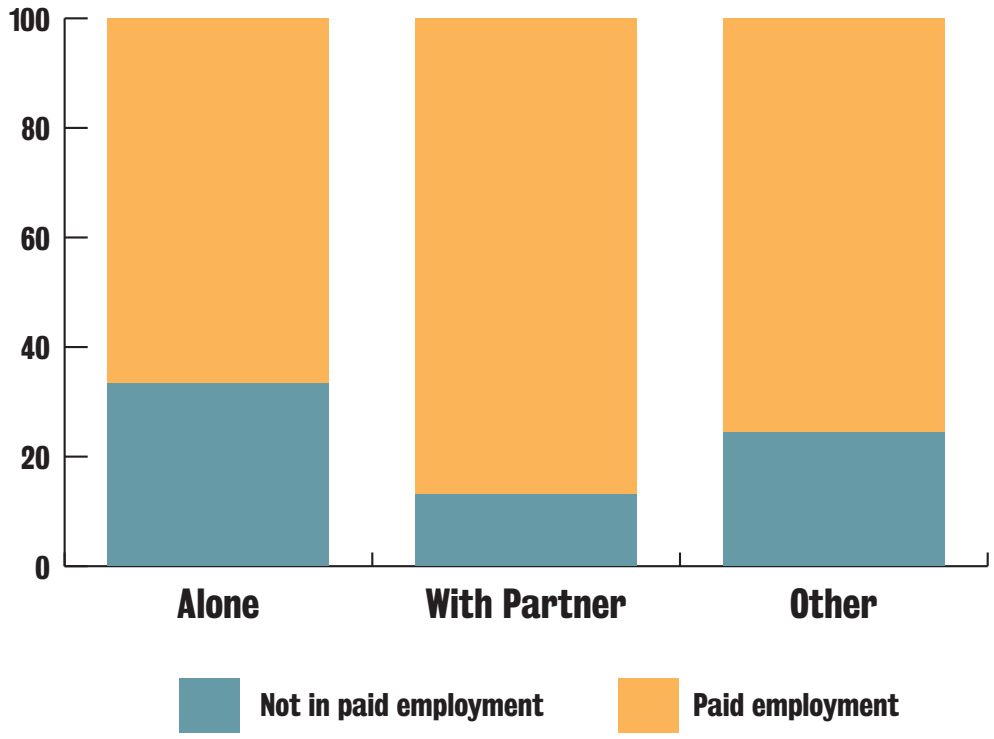
Once injured veterans returned home, some family members had to take on caregiving roles, in addition to parenting, running the household and working themselves. Family members could feel unprepared for various aspects of providing care for their injured loved one. The initial shock of being married to someone who they experienced as being different to the person who had left on deployment initially, could incur feelings of grief:

"Everything is just so different. They said because I've lost my husband, I'm grieving for him who I've lost and then I felt like I was married to a stranger." (Karen, married to a participant injured with limb loss)

Being a caregiver could cause strain on family members, particularly when physical caregiving was required along with the competing demands of childcare and holding down a job:

"You've literally got a husband who is non-weight bearing in a wheelchair and two kids to take back and forwards to school and then look after him, look after them and then try and redecorate a whole house … I aged 10 years in that year just

Figure 10 – Percentage of the veteran sample in paid employment by living situation (n=534)



[7] *TEQ-5D-5L VAS scores for "Alone" = median 75, mean 71.4; for "With Partner" = median 80, mean 76.7; for "With Other" = median 80, mean 75.2. By non-parametric test of medians, Fisher's exact p-value 0.038*

[8] *$\chi^2 < 0.001$*

with stress … I had to get on with it really because if I didn't, he would have just been left … It's all on your shoulders because you've got to be strong for them and then also still bring up your children, bringing a disabled man home to a house which is not equipped for him - couldn't even get him through the front door - things like that. Mentally and physically support really." (Karen, married to a participant injured with limb loss)

Providing care to an injured veteran could be challenging for a number of reasons. In some cases, injured veterans found it hard to communicate that they were in pain to family members; being in pain could make them unpredictable which could negatively impact upon their relationships with other family members, including their children:

"It's never that he wakes up and says, 'I'm really feeling uncomfortable today'. I notice it in his mood more than I do him actually verbalising that he's in pain … It's just a shortness with people … So, with children it's, or animals actually … It's just that those things are when they came and jump on him in the morning and that will be fine and then all of a sudden, he'll be sat on the sofa and one of them will climb round and hang off his neck, you know put their arms around his neck and that will be completely not OK. And so, it's just those extremes of it being all fun and laughter and then the next minute being really furious. I think that's just, they aren't to know. They have learnt over time, 'Look, daddy gets a sore neck'." (Suzie, married to a participant injured without limb loss)

Family members' caregiving experiences varied according to the nature of the veteran's injury and how independent they were. Some veterans were ultimately able to rehabilitate from their injuries sufficiently to be able to function relatively independently, thus lessening the degree of caregiving required by family members:

"I think definitely that first bit where my wife maybe thought, 'I've got to do everything for him, this is the relationship now it's carer, cared' and then she realises, 'Oh no actually it's not and he's going to do all this stuff'. And then you get into the rhythm of it." (Joel, injured with limb loss)

Support needs of families of injured veterans

In addition to support with caregiving, family members made suggestions about the types of support they felt would benefit them and the injured veteran to whom they were related. Family members advocated for support on how to break the news of the serving person's injury to their children:

"Just someone to maybe be with you and once they've told you say, 'Right do you have any children? We would advise this' because like I say you were a walking zombie. I look back and I think I don't know how I got from there to here … after you've absorbed the information, then say, 'Right, now, how old are your children?' because then some people can't tell them, some people want to tell them and have that conversation with them. Say, 'Would you like to explain to your children, or would you like us to?' because they've got obviously a profession in it and they know what to say. You want it said the right way really don't you." (Karen, married to a participant injured with limb loss)

While others suggested it would be helpful to receive psychoeducation on conditions relating to the injured person, such as chronic pain or mental health diagnoses:

"It's good to know because sometimes you might think you are saying the right thing but you are not, so I think any kind of education stuff is always helpful … Yes, maybe some of the how to approach things and that kind of thing, not to push things on people or try and make them be better or be like, 'Oh you are fine' kind of thing … I think education and knowing how to approach things would be helpful … especially with PTSD, like nobody really tells you how to deal with that. I think we don't really know or, like me personally, I didn't really know anything about the Army and I

suppose you are a bit ignorant to everything that's going on because unless you know somebody who is in it." (Sophie, partnered with a participant injured without limb loss)

Injured veterans themselves frequently stated that they felt that families of those injured in combat warranted more support. Injured veterans acknowledged the additional challenges that their families would be facing as a result of their injuries, particularly when they were serious:

"I suppose some informal element of peer support may help … It's important partners get a level of access akin to the veteran or the wounded personnel when it comes to that because they've got a hell of a lot to adapt to, especially those who are with someone who is very severely injured. It would be a huge strain on them as well." (Nelly, injured without limb loss)

Peer support, mental health support and periodic checking in with families were some of the suggested forms that such help could take. Injured veterans voiced the fact that families may still require support several years after the injury:

"I think what's lacking is mental health support for families even years down the line. From the initial point of getting injured to three or four years down the line there was still no mental health help available for families." (Luke, injured with limb loss)

Other family members had been offered support by the military but had declined it, highlighting the different needs they had and the manner in which they wanted to be helped:

"The Army system was very good, they reached out, very many different organisations or parts of it reached out to her for her to involved and leaflets and if she wanted visits and she [family member] didn't want any of it. She threw them all in the bin and didn't want to be part of it. But again, when I was injured, the Unit reached out very well, they allocated a person who was basically dedicated just to stick by her and take her, so she was incredibly well looked after. But again, her reaction, like mine, was, 'Better out of the system'. So, I discharged myself as soon as I could and went home and we went on holiday." (Oliver, injured without limb loss)

Conversely, some family members had been kept in touch with by the regiment with whom they were connected, and as a result, felt supported:

"I actually really felt it was well supported in that we had one port of call who was linked to the regiment. So, he was communicating with the regiment that was still in Afghanistan and us, keeping an eye on us." (Suzie, partnered with a participant injured without limb loss)

Recommendations

6. MOD and third sector support service providers: Family members of injured veterans to be offered consistent care tailored to their needs and preferences. Some specific forms of support that may be beneficial include appropriate educational materials on how to talk to children about physical injury, with a focus on breaking news to them; a deeper understanding of and more proactive support provision to alleviate the administrative, caregiving, parental, domestic and logistical burdens and demands that can fall to singular family members when their loved one sustains a physical combat injury.
7. CTP and third sector support service providers: To ensure provision of psychoeducation and peer support for family members of injured veterans covering topics such as chronic pain, caregiving (e.g. manual handling), and mental health diagnoses (e.g. PTSD).

Discussion

This report examined how the social context affected transition to civilian life of those injured in combat. We focused on three key areas – third sector support service provider activities, employment and workplaces, and the role of the family.

Previous research has shown that competitive sport enables disabled veterans to cultivate a positive post-injury identity [13]. We found that third sector support service provision supported combat veterans in a number of ways. One approach involved providing sporting and adventurous activities, engaging veterans through physical activities that aligned with their interests and experiences. Such activities could be highly beneficial in helping injured veterans reclaim their bodies and their confidence; however, some participants had negative views of those who they saw as making a career out of such activities, viewing it as a barrier to complete transition.

Another way in which third sector support service providers facilitated transition was by providing peer networks, professional networks and training activities. These were positively viewed by the participants, and in some cases successfully brought them to new jobs and careers in the civilian sector.

The role of third sector support service providers and employers of supporting injured veterans into and in civilian employment was particularly important given that participants reported that their injuries could be a barrier to employment. Some participants reported concerns about whether their injury would prevent them gaining employment, maintaining employment, being promoted, and whether they would be viewed differently due to their injury. This could reinforce negative self-esteem, if participants viewed their difficulties in gaining employment being a consequence of their injuries; this may be partly reflected in the finding that those in employment reported better health and wellbeing. The physical demands of work could exacerbate symptoms (e.g. pain) related to their injury. Workplaces could support veterans in numerous ways, such as by providing veteran-specific health support, flexible work policies, or by not allowing the injury to dictate professional experiences. Resources already exist to inform employers of good practices and can be actively promoted to veteran employers [14].

The return to the home could be a positive experience for injured personnel, both for themselves as they entered an intimate supportive environment and for their family members who could benefit from the injured veteran's time and presence. Some family members also felt relieved by the reduced levels of anxiety and disruption to their daily lives which had previously been related to pending deployments and military-related relocations. Living with, and feeling supported by, family improved employment rates and those in paid employment reported better wellbeing.

Some family members provided informal care when injured veterans returned home and, in some cases, fulfilled caregiving roles related to physical health. From a mental health perspective, family members helped provide surveillance of symptoms. Such informal care could negatively impact upon the family member by placing demands on them

that they found difficult to fulfil, particularly when they didn't understand the symptoms or know how to support them (e.g. PTSD). 'Caregiver burden' is a term used to describe the level of multifaceted strain perceived by the caregiver from caring for a family member and/or loved one over time and any resultant negative consequences perceived by the caregiver [15]. Research has demonstrated that if a caregiver is well supported, then the recovery of the care recipient can improve; otherwise, caregivers may have less capacity to provide care to their family member(s) and also be at risk of physical and mental health consequences themselves [16]. The second principle of the Armed Forces Covenant states that 'special consideration is appropriate in some cases, especially for those who have given the most such as the injured and the bereaved', and the Armed Forces Family Strategy [17] notes that, 'should a serviceperson be injured on duty, this can lead to additional caring responsibilities, including accepting and coping with changes to someone's physical and/or mental health'. Some charitable providers have arisen to attempt to fill this need, including The Ripple Pond, which was established to support loved ones of injured Serving people and veterans and is dedicated to supporting the adult family members of physically or emotionally injured Service personnel; and Give Us Time, which pursues its mission to 'give military families precious time together' and works with Services welfare agencies and other charities to deliver respite breaks to military families in need of rest, recovery and reconnection.

There was a minority of veterans living alone; these veterans overall experienced less support from family members and had lower employment rates and self-reported wellbeing.

Transition and resettlement processes provided by the MOD via the CTP [18] are intended to include the factors discussed in this report[9]. In 2019, the Armed Forces personnel in transition, Integrated Personal Commissioning for Veterans Framework (IPC4V) programme commenced. This involves the proactive identification of eligible individuals, while they are on the Defence Recovery Pathway, and their referral to an assessment to develop a holistic care and support plan. A Veterans Welfare Manager is allocated as a central point of contact to facilitate the individual's connections to community resources (e.g. veteran organisations) and facilitate referrals into health and social care.

The 2021 'Lifting our Sights: The Transition Journey' report from Forces in Mind Trust identified the importance of transition going beyond resettlement services, including culture shock when integrating with civilian life, and the importance of friends and family [19]. Thus we suggest that transition provision should be expanded to also include family support, adjustment to the home and civilian workplace, and preparation for civilian ways of living and working (e.g. by including the MT-READY [20] and M-CARM [21] instruments).

[9] E.g. in the HARDFACTS Monitoring tool used to facilitate transition, where the "A" is for Attitude, the "C" for Children and Family, and the "S" for Supporting Agencies (https://www.army.mod.uk/media/2997/transition_information_sheet_6-hardfacts.pdf)

Summary

- Participants found adventurous activities provided by third sector support service providers to be useful, both in developing a peer network and in reclaiming their bodies and identities post-injury.
- However, it was identified that becoming a 'professional injured soldier' could act as a barrier to complete transition to civilian life.
- Participants were concerned about how their injuries and ongoing symptoms would affect their careers at all stages: gaining employment, maintaining employment, and being promoted.
- Workplaces could effectively support injured veterans with specific programmes and resources, and by not letting the injury give rise to inequitable professional treatment of the veteran.
- Families could best care for the injured veteran when they themselves were provided with support in ways and at times which were appropriate.
- This report makes a number of recommendations to enhance these aspects of transition.



Recommendations

Table 1 - Summary of recommendations

Recommendation	Primary audience
1 Encourage injured veterans to make best use of both physical activities and career development opportunities provided by the third sector	MOD and third sector support service providers
2 Raise awareness among third sector support service providers of the importance of a complete transition to a civilian identity	Third sector support service providers
3 Perform a multi-charity evaluation of long-term impact of stand-alone physical events provided	Researchers and third sector support service providers
4 As well as providing advice and guidance regarding gaining employment, institutions which support unemployed injured veterans should also be coordinating with health and wellbeing service providers	MOD, Career Transition Partnership (CTP) and third sector support service providers
5 Improve awareness among employers, general practitioners and third sector providers of the occupational health implications of chronic pain and other sequelae of combat injury, and how best to support injured veterans (e.g. via flexible work policies)	Department of Health, third sector support service providers and employers of veterans
6 Family members of injured veterans to be offered consistent care tailored to their needs and preferences. Some specific forms of support that may be beneficial include appropriate educational materials on how to talk to children about physical injury, with a focus on breaking news to them; a deeper understanding of and more proactive support provision to alleviate the administrative, caregiving, parental, domestic and logistical burdens and demands that can fall to singular family members when their loved one sustains a physical combat injury	MOD and third sector support service providers
7 To ensure provision of psychoeducation and peer support for family members of injured veterans covering topics such as chronic pain, caregiving (e.g. manual handling), mental health diagnoses (e.g. PTSD)	CTP and third sector support service providers

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Appendix

Methodology in detail

This report uses data from the ADVANCE cohort combined with a series of semi-structured interviews. This Appendix outlines the ADVANCE cohort, the ADVANCE-INVEST substudy, and the methodology applied to the findings in this report; this methodological Appendix is specific and limited to the topic of this report and hence restricted to the population and methods used in this context (as opposed to the broader ADVANCE or ADVANCE-INVEST studies).

The ADVANCE cohort

The ADVANCE cohort was established to investigate the long-term physical and psychosocial outcomes of UKAF personnel who sustained a combat-related physical injury while on deployment in Afghanistan. and an uninjured comparison group. Injured For full details, please see the ADVANCE cohort profile paper [10].

Study population

The ADVANCE cohort comprises of an injured cohort who sustained their injury in Afghanistan. Individuals were recruited from a sample of UK armed forces personnel who were deployed to Afghanistan between 2002 and 2014 and had physical combat injuries, on the basis of records provided by the UK Ministry of Defence. Eligibility criteria for the injured group were, sustaining a physical combat injury while on deployment to Afghanistan; aeromedical evacuation as a result of the injury, resulting in admission to a UK hospital; and no history of cardiovascular, liver, or renal disease before injury.

Uninjured personnel were recruited as a comparison group, consisting of individuals who were frequency-matched to the injured cohort on their age, rank, regiment, deployment during specific deployment periods (based on frequency of deployment periods from which the injured group sustained their injuries), and role on deployment. Eligibility criteria for the uninjured group were, deployment to Afghanistan and sustaining no physical combat injuries while on deployment; and no history of cardiovascular, liver, or renal disease before deployment. All participants are male, due to the small number of UKAF women sustaining combat injuries (women were only allowed to take on front-line combat roles from 2018 [22], at which point most combat action had ended for the UKAF in Afghanistan). The sample size was based on a sample size calculation for the primary hypothesis of the ADVANCE study using a primary composite cardiovascular disease endpoint.

Details of potential participants from both groups and sampling characteristics were extracted from a combination of data sources, including the initial Notification of Casualty System (NOTICAS), the Defence Patient Tracking System, the Defence Medical Information Capability Programme, the Complex Trauma Database of the Defence Medical Rehabilitation Centre, the DRMC Prosthetic database, the UK Joint Theatre Trauma Registry, and the Joint Personnel Administration database.

Recruitment and data collection

Between Aug 5, 2015, and Aug 28, 2020, participants were recruited through postal, email, and telephone invitations. For those who had left the military, efforts to trace them were made through electoral roll data, social media, and advertising through military charities.

2329 participants (1163 injured and 1166 uninjured) were invited to a study day at the Defence Medical Rehabilitation Centre at Headley Court (Surrey, UK) (between 5th August 2015 and 30th August 2018) or at Stanford Hall (Leicestershire, UK; from 9th October 2018, onwards).

The study day involved trained researchers carrying out a comprehensive health investigation, including assessment of objective health measures (cardiovascular, respiratory, audiological, and musculoskeletal tests), a clinical interview with a research nurse (sociodemographic information and personal and family medical histories), and self-completion of participant questionnaires (musculoskeletal functioning, mental health, occupational history, and drug use). Participants provided informed consent prior to participation.

Data were stored securely by the ADVANCE data team, and an anonymised subset was provided to individual researchers following a data access request process, providing only those variables necessary for their individual analysis.

Response rate

Adjusted response rates at baseline (excluding those who had died or had no available contact details) were 59.6% and 56.3% for the injured and the uninjured groups, respectively; the final sample consisted of 579 participants in the injured group and 566 participants in the comparison group [5].

The ADVANCE-INVEST substudy

The ADVANCE-INVEST substudy commenced in 2022, to examine transition from military service to civilian life for those in the ADVANCE study. This substudy aimed to identify factors facilitate good transition outcomes (in terms of health, wellbeing, and economic stability) as well as identifying factors associated with poor outcomes. These factors include the initial situation of the transitioning individual (including demographics, military and deployment-related experiences, service-related injury, and other health factors). By utilising a mixed-methods approach and considering both the situation of the individual and the resettlement, health-related, and other support services provided to them, recommendations will be made to best support for transitioning individuals (particularly battlefield casualties and those with service-related disability) from the perspectives of policy, practice, and service delivery.

Study population

Participants from the main ADVANCE study were included in the ADVANCE-INVEST study if they had left the military (in order to be eligible for employment in the civilian sector), thus excluding 610 of the original sample who were still serving in the UK Armed Forces at baseline. The ADVANCE-INVEST sample included in this report comprises 547 ADVANCE participants who had left the UKAF (excluding those who served as a reserve[10]) at the point of follow-up data collection (Figure 2): one hundred and fifty-one of the ADVANCE-INVEST sample were from the comparison group, while 396 were from the injured group.

ADVANCE-INVEST participant demographics

Within the ADVANCE-INVEST sample, most participants were from the Army (82%), held a lower rank when in Service (73% Private up to

[10]*Reserves were excluded as they were still be part of civilian culture and labour market during service and hence did not experience transition in the same way as those who served as regulars.*

Corporal and equivalents), had a combat role (86%), and had sustained a blast injury. The mean age at time of baseline data collection was 34 years; on average, participants were sampled 8 years post-injury for the injured group). There were no significant differences with regard to rank, Service branch, role, or age between the comparison group, those injured with limb loss, and those injured without limb loss; the only exception was that those injured with limb loss were slightly younger (an average of 2.1 years younger than the comparison group).

Military factors

Rank was determined from data at time of sampling, coded as a proxy for socioeconomic status, and categorised as Junior Non-commissioned Officer/Other rank (NATO OR2-OR4), Senior Non-Commissioned Officer rank (NATO OR5- OR9), and Officer rank (NATO OF1-OF6) [23]. Service arm was divided into Naval Services (including Royal Marines), Army, and Royal Air Force (RAF).

"Limb loss" was defined as having an amputation above, below, or through the knee for one or more lower limbs, or above or below the elbow for one or more upper limbs. Isolated partial amputations (e.g. partial foot, partial hand, finger, or toe) were not included in the limb loss group but instead placed in the injured without limb loss group; this is because the original hypotheses of the ADVANCE study were based on risk of cardiovascular disease (CVD), NS partial amputations are less likely to impact CVD compared to limb amputations.

Outcome measures

Wellbeing: Wellbeing was determined using self-reported health from the EuroQoL EQ-5D Visual Analogue Scale [12] which asks participants to rate how good their health is on that day, providing a range of 0 ("the worst health you can imagine" to 100 ("the best health you can imagine").

Living situation: We generated a variable for who they lived with using self-report questionnaire responses. Those who reported living alone were classified as "alone", those living with a partner as "living with partner", and those not living alone but not living with a partner were classified as "living with other(s)" (the "others" mostly consisting of other family members).

Employment status: We used self-reported data from the baseline questionnaire undertaken by participants, who were asked the stem question "Are you currently:", with a range of possible responses. Those who were in paid work were categorised as "employed"; and all other responses (seeking work, unable to work due to ill health, in full-time education, etc.) were categorised as "not economically engaged". We excluded those who had retired from paid employment as the key outcome was re-employment in the civilian labour market and retirees have left the labour market. The final quantitative sample used specifically for the employment-related analysis comprised 534 individuals.

Analysis and missing data

Data were analysed using the statistical software package Stata version 17.0 (25). Missing values for variables included in these analyses were uncommon; less than 1.5% for any variable (n=0

Table 3 – Descriptive statistics for the total sample and by injury group (column percentages)

Variable	Category	Total sample, n=547 (n (%))	Comparison group n = 151 (n (%))	Injured with limb loss n = 135 (n (%))	Injured without limb loss 261 (n (%))
Age at assessment (years) (mean (SD))		34.3 (5.7)	35.3 (6.5)	33.3 (4.6)	34.2 (5.7)
Time since injury (injured group only) (years) (mean (SD))		8.3 (2.2)	n/a	7.6 (1.9)	8.7 (2.2)
Rank n (%)	Junior NCO/Other rank Senior NCO Officer	400 (73.1) 93 (17.0) 54 (9.9)	94 (62.3) 36 (23.8) 21 (13.9)	107 (79.3) 17 (12.6) 11 (8.2)	199 (76.2) 84 (32.2) 40 (15.3)
Service branch	Naval Services Army Royal Air Force	81 (14.8) 449 (82.1) 17 (3.1)	29 (19.2) 117 (77.5) ≤ 10*	13 (9.6) 117 (86.7) ≤ 10*	39 (14.9) 215 (82.4) ≤ 10*
Role	Combat Combat support Combat services support	457 (83.9) 22 (4.0) 66 (12.1)	123 (81.5) ≤ 10* 24 (15.9)	113 (83.7) ≤ 10* 13 (9.6)	221 (85.3) ≤ 10* 29 (11.2)

** Data obscured due to risk of identifiability*

for injury status, n=1 (0.2%) for employment status, n=6 (1.3%) for mobility, and n=4 (0.8%) for pain); hence data are presented on a complete case basis.

Comparison of employment and living situation was performed by χ^2 test; p-value is given in the footnote. Due to the distribution of the wellbeing variable, relationships with this outcome were analysed using non-parametric test of medians; statistically significant findings are presented in footnotes. Charts in this report presenting the data on the wellbeing variable are simplified, using tertiles for low (0-75), average (76-85) and high (86-100) self-reported health and wellbeing derived from the overall scores for the participant population. Note that these tertiles are relative to this population, and are not generalisable, objective indicators of wellbeing.

The ADVANCE-INVEST qualitative component

Research questions

The qualitative inquiry had one overarching research question: "how is the experience of transition – the manoeuvre from military to civilian systems and supports – affected by battlefield injury?" There were three further questions which shaped data collection and analysis:

1) How have participants' injur(ies) affected their sense of self? [Participants' internal world]
2) How have participants' injur(ies) impacted their transition and their ability to engage with, and adapt to, the external world? [Participants' external world]
3) What helped and hindered participants' experiences of transition whilst being injured? [Recommendations and solutions]

Qualitative sampling and recruitment procedures

The sample to be interviewed for qualitative analysis was formed by randomly selecting a subset of ADVANCE-INVEST participants from each injury group (injured with limb loss; injured without limb loss) and from those medically discharged from the comparison group[11]. Random selection was performed by providing the data team with the numbers of participants desired in each of three groups of participants; potential interviewees were then randomly selected from those within each group.

Initially, participants were invited to take part by telephone by a member of the main ADVANCE study. If they could not be reached by telephone, subsequent attempts were made by email, or by post if we did not hold a valid personal email address. This invitation was delivered by the main ADVANCE study, so that personal data was not shared with ADVANCE-INVEST. Unless participants indicated that they did not wish to participate, up to two reminder invitations were sent to non-responders. Those who were interested in participating were provided with full written details (i.e. a consent form and participant information sheet).

Family members were identified through participating ADVANCE personnel, who were asked if they had a family member who might consider taking part in the study during their interview. The participants were provided with information packs via email to forward to their family members. Initially we managed to secure only one interview with a family member through this method. Consequently, we consulted with our PPIE group, who recommended designing a mobile-friendly, short survey. As a result, we designed a short, mobile-friendly, free-text survey (using Qualtrics) which posed four questions that could be answered using a written text response. We hoped that by

[11]Some ADVANCE participants who formed part of the comparison group were medically discharged from the military for other reasons (e.g. mental health difficulties); this group was selected for qualitative interview primarily to obtain data regarding the medical discharge process, which was the subject of the first short report in this series.

having a quick and accessible way to respond to some questions we would generate some data whilst simultaneously building a relationship with the family member which might mean they would be more inclined to conduct an interview.

One family member was the wife of a participant injured with limb loss, three family members were wives/partners of participants injured without limb loss and one was the mother of a participant medically discharged from the comparison group.

The participant information sheet for family members was sent as an attachment via email and the informed consent form was embedded into the Qualtrics survey, which was sent as a link in the email. Each of the four questions was followed by an empty box to allow for free text responses of any length. The four questions posed were:

1. Has your home life been affected by your family member's injury(ies)? Please tell us as much or as little as you like about this.
2. Has your work life has been affected by your family member's injury(ies)? Please tell us as much or as little as you like about this.
3. Has your relationship with your injured family member been affected by their injury(ies)? Please tell us as much or as little as you like about this.
4. Is there anything that could have been done better to support you/your family since your family member was injured? Is there anything else you would like to say?

After these questions, family members were asked if they would like to opt-in to interview ("Yes"; "No") or to find out more ("Maybe. Could you contact me and tell me more about it"). They were then asked for contact details if they would or might want to take part in an interview, and informed that these details will be handled in accordance with our GDPR policies and they will not be identifiable in any study outputs as a result of sharing these.

Interview schedule

The interview schedules were drafted by a member of the ADVANCE-INVEST research team (AV), with additional discussion among the team members (NTF, LP and HB), based on the research question and pre-existing knowledge regarding this population. Slightly different interview schedules were designed for family members related to veterans with injuries and without injuries. The interview schedule was piloted with other members of the wider research team and the study PPIE group (including serving personnel of the UKAF) and amended accordingly.

For participants who had sustained injuries, the interview schedule was designed to understand the role that their injury played in their life since leaving the military. In order to generate a holistic understanding, and to align with the timeline participants provided, the interview schedule started by asking participants about their injury and how it was sustained. It proceeded to ask about the participant's experience of, the military's rehabilitative systems; the medical discharge process; post-service life and employment; mental health and associated support; coping strategies; home life; relational changes; COVID-19; the withdrawal from Afghanistan; their future; and support recommendations.

For participants who had been medically discharged for other reasons, the interview schedule followed the same format as that used for participants who had sustained injuries but omitted topics that were relevant to those who had sustained injuries, such as the point of injury.

Interview procedure

Interviews were conducted with 28 ADVANCE-INVEST participants: twelve ADVANCE-INVEST participants who were injured and sustained limb loss; twelve ADVANCE-INVEST participants who were injured but did not

sustain limb loss; and four ADVANCE-INVEST participants from the comparison group who were medically discharged.

Initially, the research team had planned to undertake 20-30 interviews with veteran participants. This number was deemed necessary by the research team to reach data saturation; ultimately, sample sizes were determined by data saturation. Subgroups were sized to ensure appropriate group-specific data.

Four family members responded to the Qualtrics survey. One family member indicated via the Qualtrics survey that they wanted to have an interview and three said they might like to interview and asked to find out more. Ultimately, we interviewed five family members (one prior to the deployment of the Qualtrics survey and four subsequently). Online interviews were set up with family members at a convenient time for them; one interview spanned three meetings to ensure that the family member participant was able to meet their other commitments. One family member was the wife of a participant injured with limb loss, three family members were wives/long-term partners of participants injured without limb loss and one was the mother of a participant medically discharged from the comparison group.

Prior to interview, all participants (veterans and family members) were asked if they wanted to send in a timeline of key events that had happened since they or the veteran they were related to was injured. Examples of key events were given and could include, house moves, job changes, family changes - anything the participant felt to have been significant. No family member submitted a timeline and so their Qualtrics data was used in a similar way as the timelines: to personalise the interview schedule to the individual circumstances of each participant. The Qualtrics data was not analysed separately.

Individual interviews with participants were conducted online using Microsoft Teams between 3rd November 2022 and 21st February 2024, by AV.

Qualitative analysis

Audio files were sent to an independent transcriber (who had signed a contract of confidentiality) who returned redacted transcripts to the research team; pseudonyms were applied to all transcripts. Audio files were listened to in order for the researcher (AV) to further familiarise themselves with the data. Interview data were analysed using Reflexive Thematic Analysis [24, 25], a common method for qualitative analysis. Reflexive Thematic Analysis was used due to its accessibility and systematic procedures for generating codes and themes from qualitative data; NVIVO software was used to facilitate the analysis process. Interview transcripts were imported to NVIVO, read and reread, with codes noted throughout the interview dataset. This process was carried out iteratively, with codes being grouped into themes, and themes being structured and restructured as the analysis progressed.
The researcher kept reflective notes to enable consideration of how their own experiences and preconceptions might influence their interpretation of the data. The themes presented are reflective of the ways in which the study team categorised and grouped the overall findings (based on participant experience) into a series of short reports. The themes themselves are based on participant experiences which were identified across multiple transcripts, in some cases by salient opinions which were less frequently identified but deemed important, and sometimes they are contributed to by statements that contradicted the main theme established. This report presents participants' quotes that are indicative of the themes identified.

Positionality statement

"At the time of conducting and analysing these interviews I was a researcher based within a team of military health researchers at a University in London, UK. I approached this project as someone who had researched military health research for approximately 15 years and as a result had some experience and some expectations around the

data I was due to collect. As someone who has never been employed by the military, nor injured as a result, I had an expectation that having an amputation-related injury would result in greater suffering than a non-amputation-related injury. This expectation was then dislodged by the analysis both quantitative and qualitative data within ADVANCE and ADVANCE-INVEST, which have shown that reinvention of self is possible for those with amputation-related injuries, as long as their pain has been addressed.

Having previously researched the needs of family members of wounded, injured and sick military personnel, I was aware of some of the challenges (emotional and logistical strain) this group can face once their loved one has been injured. However, I had not anticipated the low recruitment rates for the family member interviews within ADVANCE-INVEST, which we were informed, by participants, was due to how distressing their experiences had been and how they did not wish to revisit or awaken them in interview. Knowing this level of distress was present, influenced the way I conducted the interviews with the family members who did take part. I was particularly responsive and adaptive to their needs: splitting one interview into three parts and another into two, to accommodate the lives and experiences of family members whose loved one had been injured." (AV)

Limitations

Participants were drawn from those who were seriously injured in combat and aeromedically evacuated from the conflict in Afghanistan, and a matched uninjured comparison group. Therefore, the participants in this study are not necessarily representative of the general injured population of the UK Armed Forces, nor other populations with physical injuries. Due to a small number of participants with upper limb loss, most of whom also had lower-limb loss, these analyses did not discriminate between upper and lower limb loss.

Ethical approval

Full ethical approval for the ADVANCE study was granted from the UK Ministry of Defence Research Ethics Committee (MODREC; protocol No:357/PPE/12).


SANCTE ET SAPIENTER