



**Evaluation of the Trial of Assistance Dogs as an Adjunct to
Therapy for Veterans with Posttraumatic Stress Disorder
(PTSD)**

Final Report

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Executive Summary

This report, prepared by Evolution Research, with a literature review provided by La Trobe University (LTU), details the findings of the independent evaluation of the four-year Trial of Assistance Dogs as an Adjunct to Therapy for Veterans with Posttraumatic Stress Disorder (PTSD) (the Trial). The Trial was conducted over four years, from 2018 to 2022, and was funded by the Australian Government's Department of Veterans Affairs' (DVA) which committed \$1.9 million to assess the impact of an assistance dog for veterans with PTSD. The overall aim of the evaluation was to advance the understanding of the clinical utility of assistance dogs to veterans with PTSD and potential reduction of carer burden on members of their support team.

DVA engaged LTU, in collaboration with the Centre for Service and Therapy Dogs Australia (CSTDA; the 'training provider'), to deliver the Trial, including to select, train, allocate, provide ongoing support for, and monitor assistance dogs as an adjunct to evidence-based treatment for veterans with PTSD, so that the following outcomes could be determined:

1. The clinical utility of using specifically-trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population;
2. The benefits of specifically trained assistance dogs used by veterans with PTSD in decreasing related support person burden; and
3. Provide policy and program insights to ensure the DVA assistance dog program is positioned to provide evidence-based informed care.

The objective of the evaluation was to determine the extent to which the Trial achieved its objectives and to provide advice to DVA about:

1. The feasibility of using specifically trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population;
2. Any unintended positive or negative impacts on veterans, their families and carers from participation in the project;
3. Any unintended positive or negative impacts on the assistance dogs from participation in the project; and
4. Key considerations and adaptations to the model required for input into policy and program development that would enhance the current DVA Psychiatric Assistance Dog (PAD) Program.

Methodology

A mixed methods approach was utilised in the design of this study. To meet the specific evaluation objectives, selection of participants was limited to 20 veterans, their support persons and stakeholders participating in the Trial.

Data collection methods included:

- The use of established and validated surveys, to measure PTSD symptomology, quality of life, general health and carer burden, to provide measurable and less subjective conclusions to be drawn regarding outcomes experienced by veteran and support person participants.
- The use of qualitative interviews to enable richer data to be gained to supplement survey findings and to provide information relating to the implementation of the program itself and key considerations relating to future scalability of the model used in the Trial.
- The use of surveys to collect feedback from clinicians in relation to recruitment and training processes and veteran outcomes following receipt of their assistance dog. These surveys

provided for both quantitative measures and free-text responses to capture the experiences and observations of treating clinicians.

- The methodology included the collection, collation and analysis of data relevant to the Trial. This data provided information on activities, outcomes, Trial components, factors impacting outcomes (both individually and program wide), successes and challenges. Data collected incorporated both whole of Trial and individual results.

COVID-19

As 18 of the 20 veteran participants in the Trial resided in Victoria for the majority of the Trial period, of particular relevance to this Trial are the impacts of COVID-19 in Victoria and Australia state border restrictions. Victoria experienced several extended lockdown periods during the time of the Trial, between March 2020 and late October 2021. The potential impacts of this have been considered when evaluating the findings.

Evaluation outcomes

Data collected for the duration of the Trial indicates that the implementation of a structured, goal-oriented program which includes regular engagement of veterans with PTSD is helping to address and influence veteran and support person interactions with each other, family members and the general community.

Seventeen veteran participants completed the Trial, with three withdrawing at different stages due to the impact of events and changes in their personal lives. The training program has successfully guided the remaining veterans to the point of receiving their own assistance dog to live with them in their home. As veteran participants reached the point of readiness to receive their assistance dog, the training provider determined specific goals with each veteran participant as to what they hoped to achieve with the support or use of their assistance dog. The most reported goals included:

- Reduce anxiety/anger by redirection, distraction and grounding and prevent escalation into full panic/dissociation/unacceptable reaction
- Improve quality of life by improving work/life balance, self-care and quality time with partner
- Become healthier, increase activity, improve daily routines and morning moods
- Enable better sleep at night and reduction of nightmare effects
- Increase feeling of safety in public when distressed, especially during dissociation
- Regular community access (at any time of the day), public transport access and social interaction; to go to new places independently, without feeling crowded or threatened, especially by strangers from behind, without consequent exhaustion from hypervigilance
- Improve relationship with children and enhance communication with immediate and extended family.

Key findings

The evaluation has found that the Trial has successfully achieved the objectives of:

- Determining the clinical utility of using specifically-trained assistance dogs as an adjunct to

- Enabling program and policy insights to ensure that the DVA Psychiatric Assistance Dogs

The Trial has demonstrated that the training program and the assistance dog have provided an overall positive impact for veterans in relation to both PTSD symptomology and treatment, and broader personal gains. While limited reduction in support person burden has been found, there have also been positive impacts experienced. However, these impacts have been accompanied by a number of challenges.

Findings as they relate to the key evaluation questions are summarised below.

1. *Does evidence support the clinical utility of using specifically-trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population?*

Data collected through quantitative and qualitative tools indicates that the application of an assistance dogs program has a positive impact on a veteran's PTSD symptomology and on many other aspects of their lives and overall mental health. In addition, the findings indicated that such a program which utilises specifically trained assistance dogs has potential for use as an adjunct to evidence-based treatment of PTSD in a veteran population. The extent to which it was possible to evaluate this effect was limited as the training program did not incorporate structured or regular review and communication between the training provider and treating clinician. It is considered that the program would have benefited from greater integration of goal setting and training activities with the therapeutic approach.

Based on statistically significant and qualitative findings, specific benefits observed for veteran participants include:

- Reduction in PTSD symptom severity
- Decrease in social isolation
- Decrease in anger
- Decrease in anxiety and hypervigilance
- Decrease in fatigue
- Improved participation in social roles and activities
- Improved sleep quality and reduction in sleep disturbances
- Improvement in communication and relationships with family and others
- Increased confidence and independence in using public transport and accessing community and social activities.

Benefits are consistent with several international studies cited in this report, where veterans have demonstrated a reduction in PTSD symptom severity following the handover of their assistance dog, though they still retain a diagnosis of PTSD. Similarly, the findings reflect those of international studies which reported a reduction in depression and anxiety, and improvements relating to sleep quality and social isolation.

Multiple veterans and support persons reported that the presence and intervention of the assistance dog has been pivotal in preventing self-harm and suicide.

Treating clinicians have indicated that they see a number of potential benefits to using an assistance dog program as an adjunct to treatment of veterans with PTSD. They reported observing improvements in psychological outcomes in veterans with an assistance dog, as well as positive impacts on social interactions, interpersonal and family relationships, and community access. However, clinicians also indicated a more developed approach to linking an assistance dog program with therapy will be needed to realise maximum benefit.

In considering the program's impacts on areas such as veterans' ability to participate in social roles and activities (such as leisure activities, activities with family or friends, or work activities including those around the home) or perceived pain interference with day-to-day activities and tasks, it is noted that these changes may have been influenced by factors unrelated to the assistance dog or Trial involvement, such as COVID-19 restrictions and impacts of lockdown; or ill health, injury and surgery (of the veteran or their family members). It is also noted that these findings are based on evaluation of one specific training program and these findings may not be replicated in other training programs. More reliable or conclusive trends which accounted for these external influences would require a much larger sample size, a model where these factors were known or anticipated, and/or a control group available for comparison. Notwithstanding these limitations, the current evaluation has demonstrated clear trends which indicate clinical utility of specifically trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population, and this would warrant further investigation with a larger sample size and control group, across a range of approaches of training programs.

2. *As a result of participating in the Trial, were there any unintended positive or negative impacts on:*
 - a. *Veterans*
 - b. *Veterans' families and carers*
 - c. *Assistance dogs*

The Trial proved beneficial to veterans throughout both the initial training phase and following delivery of the assistance dog.

With the training and delivery of the assistance dogs deemed an essential service during the COVID-19 lock-down periods in Victoria and Australia, this allowed the training to continue with minimal disruptions. This continuity presented an unintended benefit for veteran and support person participants as it assisted in minimising the potential impacts of the self-isolation and 'stay-at-home' restrictions enforced in Melbourne during the pandemic. Interestingly, many of the benefits have been observed despite multiple published research reports indicating significant and adverse mental health impacts of COVID-19 on many people in the general population.

Key to the positive impacts observed from the early stages of the training program was the structure and delivery of training provided to the veterans. Training provided veterans with confidence and interactions with both trainers and the trainee assistance dogs were highlighted to have been a positive experience

Overall, veteran and support person participants did not report any negative impacts associated with their involvement in the pre-delivery training program phase. However, some participants experienced a degree of challenge while transitioning to having the assistance dog living with them, particularly where existing household and family responsibilities were high, or where the dog displayed challenging behaviours (both in and out of the home). In particular, many support persons indicated feeling increased burden during the transition phase due to being required to take on additional care responsibilities associated with the dog. These challenges, however, were noted to be an ongoing area of intervention and training by the provider to work to resolve the concerns and to support the veteran and support person through and beyond the transition process. Some support persons indicated that if they had been more involved in the pre-delivery training that they may have felt better equipped to address some of these challenges.

There were no identified unintended positive or negative impacts on the assistance dogs themselves during the Trial. Although in two cases the first assistance dog assigned to the veterans needed to be replaced, there were no ongoing negative impacts on the welfare of the dog. These dogs were deemed an unsuitable match due to household factors or specific veteran need, and were re-homed

following assessment and re-training by the training provider. In selecting a replacement dog, the training provider considered the reasons for the original dog's unsuitability and factored this into their selection and training process for the subsequent dog, including selection of a different breed in one case to provide a temperament more suited to the veteran's needs. Both of the replacement dogs were found to be suitable.

3. *Is there a decrease in related support person burden as a result of specifically trained assistance dogs used by veterans with PTSD?*

Little change was reported regarding support person burden, based on outcomes of survey findings. However qualitative feedback indicated improvement in perceived support person burden for some, due to the veteran becoming more confident to attend public outings on their own (e.g., through independent use of public transport with their assistance dog, going to shops and other activities), or through the support person feeling more comfortable about leaving the veteran at home alone, knowing the assistance dog would provide support and comfort if required.

It is important to recognise the change in household dynamics that the extended COVID-19 lockdowns have had on both veteran and support person participants,, and that the introduction of the assistance dog has not come without challenges to the support person.

Where the support person lived in the same household as the veteran, the level of support person burden due to the assistance dog increased, particularly during the transition period where additional care responsibilities for a young dog were required. For many support persons this burden reduced the longer the assistance dog lived in the home; however, it is noted that some support persons continued to experience challenges relating to behaviours of the assistance dog. Further, some of these issues were not yet resolved at conclusion of the Trial (but continued to be addressed through support of the training provider).

4. *What are the key considerations and adaptations to the model required for input into policy and program development that would enhance the current DVA Psychiatric Assistance Dog Program?*

To ensure the maximisation of benefits to veterans and the successful implementation of the ongoing assistance dog program, ongoing awareness of, and education in how an assistance dog program as an adjunct to therapy can benefit clinicians and veterans, would be beneficial. Key findings of the current evaluation indicated:

- Awareness and education:
 - The benefit of increased awareness and understanding of potential benefits of an assistance dog for veterans with PTSD, to ensure veterans and support persons can make an informed decision as to whether this option is appropriate for their circumstances.
 - The importance of veterans maintaining the clinician-initiated referral mechanism.
 - The as the preferred referral method, while allowing an option for veterans to initiate a referral enquiry, pending subsequent engagement of and approval by their clinician; the benefit of increased awareness of the assistance dog program for clinicians and veterans followed increased reporting by DVA and mainstream media sources.
 - The need for education, through mainstream media sources, to facilitate increased awareness and acceptance of the use of assistance dogs by veterans with PTSD to reduce challenges experienced in public access settings.

- Understanding of the program
 - Further development of program information for all stakeholders, veteran, support person and clinicians is required to ensure clear understanding of the intent of the program, the commitment required by all stakeholders and potential impact on the veteran's life, both positive and negative. It is important that the information presented clearly articulates the impact of the program without overstating the potential benefit of an assistance dog, to assist in managing the veteran's expectations of the impacts that can be achieved and also clearly articulating the impact on the support person. It is also important that real life examples and individual experiences of veterans who have received an assistance dog, including both positive outcomes and challenges, are included in this information.

- Adjunct to therapy
 - There is a clear need for development of resources to assist clinicians to better understand the benefits of assistance dogs as an adjunct to current evidence-based therapy approaches.
 - Better alignment of the assistance dog program with the clinical therapy approach is needed, to ensure therapeutic goals and activities being implemented by the clinician can be supported by the assistance dog program.

- Effective training
 - The experience of the training provider, not only in providing reputedly and effectively trained dogs, but also in relation to their understanding of PTSD and mental health assistance, appears to have been critical to the success of the Trial. The effectiveness of this could be increased through building of a closer, more regular communication with the treating clinician, as relevant to aligning the therapeutic approach and working towards individual veteran goals.
 - Many veteran participants commented that they have experienced frustration at the behaviour of assistance dogs trained by other providers, who they perceive have not behaved well in public places. . The current and emerging assistance dog industry is generally self-regulated with organisations conducting their own public access testing and accreditation. The increased awareness, and public funding of assistance dogs has the potential to lead to greater demand and opportunity for various training organisations to provide these programs. This places pressure for a standard of training of both dog and veteran so they have the skills necessary to ensure an assistance dog for a person with PTSD is beneficial. Therefore, to ensure the minimum acceptable standards are maintained, independent oversight or audit of all training providers would be beneficial.
 - Training experienced by those with more complex home environments or for veteran's with more unique needs highlighted that effective training cannot be delivered using a one-size-fits-all approach and must be tailored to adapt to each individual's situation. This can include a wide range of considerations such as a complex family environment (for example, young children or others with disability care needs) to a veteran living independently.
 - This evaluation focussed on the impact of training and delivery of the assistance dog for veterans with PTSD using only one training model. The model used immersed the veteran (and support person) in 12-18 months of training to prepare, match and support both the veteran and the dog. Although this process was initially daunting for many veterans and support persons, on reflection, all recognised the importance of

the approach, including the duration, used by the training provider and view this as a minimum standard. In addition, the importance of the pre-delivery training phase was highlighted by both qualitative and quantitative feedback indicating that veterans experienced improvements in many areas of their mental health, routines and confidence during the initial training period prior to handover of their own assistance dog.

- Training participants reported substantial benefits from the in-person, regular contact with the trainers, as well as the time available from trainers to support them at their pace and in line with their level of need. However, where in-person training was limited due to change in geographical location of the veteran, combined with COVID-19 border closures, these benefits were noted to have been felt to have reduced and perceived to have impacted the training progress of the veteran and assistance dog towards attaining desired goals. As experienced by veterans who received training and support outside of the metropolitan areas or interstate, the level and access to training, and the dogs' role as an assistance dog diminished and the instances of behavioural issues with the dog increased. It is evident that the successful implementation of the program is a result of the foundation training provided to both veteran and dog. Many veterans highlighted the importance of the training provided to them to understand how to manage the dog and their role in the dog's development. It is therefore considered critically important that providers have the capacity to deliver the service and to support the veteran in-person, within their local environment/community.
- Following the transition phase of the assistance dog living with the veteran, many veterans reported feeling more comfortable with a reduced frequency of contact with the trainers. However, most reported that they would benefit from periodic access to a trainer on an ongoing basis to ensure that they were able to maintain the training and behaviours required for their assistance dog (to meet their goals and maintain competency of the dog, and meet ongoing public access test obligations). It is considered important to ensure that veterans have access to training support and advice when needed to address any challenges that arise with their assistance dog, whether this be a need for quick advice by telephone, or a more intensive training refresher session in-person to rectify more serious concerns or behaviours.

Recommendations

Throughout the evaluation, the research provided ongoing and iterative input into the DVA PAD program, directly influencing changes to the program. Overall recommendations arising from the evaluation for future program implementation include:

1. **Adjunct to therapy** – it is recommended that:
 - a. Broader implementation of an assistance dog program continue to be made available to veterans with PTSD, maintaining the guidelines and support mechanisms utilised in the Trial.
 - b. Resources be developed to assist clinicians to better understand the benefits of assistance dogs as an adjunct to current evidence-based therapy approaches to utilise and enhance the therapeutic partnership between clinicians and providers.
 - c. Processes be developed to better align assistance dog programs with the clinical therapy approach for each individual veteran.

2. **Program information** – it is recommended that:
 - a. Future implementation requires further development of program information for all stakeholders, veterans, support persons and clinicians, including clear outline of the intent of the program, the commitment required by all stakeholders and potential impact on the veteran’s and support person’s lives, both positive and negative.
 - b. Information resources be developed, specifically to inform each individual stakeholder (i.e., veteran and support person separately), on what to expect and what the program will involve, with consideration given to use of various approaches such as webinars or use of mentors already experienced in the program.
 - c. Information resources be developed, specifically to inform clinicians on how the role of an assistance dog can work in therapy and in the veterans’ day-to-day life and to educate clinicians’ professional awareness of referral criteria and facilitate legitimate referral into the program.
3. **Training Providers** – it is recommended that:
 - a. Providers must have the capacity to deliver the service and to support the veteran in-person, within their local environment/community; or have the ability to enact this support locally in instances where the provider is not physically located or when the participant may relocate.
4. **Ongoing Support Mechanism** – it is recommended that:
 - a. A sustainable ongoing support mechanism be developed to ensure veterans have access to training provider advice and support relating to maintaining their assistance dog’s competency and behaviours as needed for the life of their assistance dog.
5. **Peripheral Support Services** – it is recommended that:
 - a. A centralised case management model be delivered by DVA, or representatives of DVA, to support veterans and support persons and guide the assistance dog program provider, in relation to issues impacting the well-being of the veteran that are beyond the scope of the training provider’s responsibility.
6. **Quality Assurance** – it is recommended that:
 - a. An external auditing/assessment framework be developed and implemented by, or on behalf of DVA, to ensure providers engaged to deliver assistance dog training and services maintain the minimum standards outlined by Assistance Dogs International.
7. **Training Models** – it is recommended that:
 - a. As the current evaluation involved only one training model, an evaluation be undertaken of the impact of other training models currently in use in the DVA Psychiatric Assistance Dog Program.

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List of Acronyms Used

ADF – Australian Defence Force

ANOVA – Analysis of variance

CBT – cognitive behavioural therapy

COVID-19 – coronavirus disease of 2019

CSTDA – Centre for Service and Therapy Dogs Australia, referred to as the ‘training provider’

DDVA HREC – Departments of Defence and Veterans' Affairs Human Research Ethics Committee

DSM-5 – Diagnostic and Statistical Manual of Mental Disorders

DVA – Department of Veterans' Affairs

EMDR – eye movement desensitisation and reprocessing

GP – general practitioner

GSE – General Self-Efficacy Scale

LTU – La Trobe University

PAD – Psychiatric Assistance Dog

PCL-5 – PTSD Checklist for DSM-5

PIS – Participant Information Sheet

PROMIS – Patient-Reported Outcomes Measurement Information System

PSQI – Pittsburgh Sleep Quality Index

PTSD – Posttraumatic Stress Disorder

USA – United States of America

WHO – World Health Organisation

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Trial and evaluation overview

Evolution Research was engaged to conduct an independent evaluation of the Trial of Assistance Dogs as an Adjunct to Therapy for Veterans with Posttraumatic Stress Disorder (PTSD) (the Trial). The overall aim of the evaluation was to advance the understanding of the clinical utility of assistance dogs to veterans with PTSD, and potential reduction of carer burden on members of their support team.

The Australian Government's Department of Veterans' Affairs engaged La Trobe University (LTU), in collaboration with the Centre for Service and Therapy Dogs Australia (CSTDA; the 'training provider'), to conduct the Trial which commenced in 2018 and concluded in 2022¹. The objectives of the Trial were to select, train, allocate, provide ongoing support for, and monitor assistance dogs as an adjunct to evidence-based treatment for veterans with PTSD, so that the following outcomes could be determined:

1. The clinical utility of using specifically-trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population;
2. The benefits of specifically trained assistance dogs used by veterans with PTSD in decreasing related support person burden; and
3. Provide policy and program insights to ensure the DVA assistance dog program is positioned to provide evidence-based informed care.

The objective of the evaluation is to determine the extent to which the Trial achieved its objectives and to provide advice to DVA about:

1. The feasibility of using specifically trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population;
2. Any unintended positive or negative impacts on veterans, their families and carers from participation in the project;
3. Any unintended positive or negative impacts on the assistance dogs from participation in the project; and
4. Key considerations and adaptations to the model required for input into policy and program development that would enhance the current DVA Psychiatric Assistance Dog Program.

The research is not hypothesis-driven, but rather seeks to explore answers to key questions which include:

1. Does evidence support the clinical utility of using specifically-trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population?
2. Is there a decrease in related support person burden as a result of specifically trained assistance dogs used by veterans with PTSD?
3. As a result of participating in the Trial, were there any unintended positive or negative impacts on:
4. What are the key considerations and adaptations to the model required for input into policy and program development that would enhance the current DVA Psychiatric Assistance Dog Program?

¹ On conclusion of the Trial, veteran participants transferred to the Department's Psychiatric Assistance Dog Program (PAD) for continued support and funding relating to their assistance dog.

As there were no known similar PTSD assistance dog programs underway in Australia at the time of commencing the Trial², a comparison group of veterans with PTSD without an assistance dog (e.g., of those on a waiting list to receive an assistance dog) was not possible. Findings can therefore be utilised as providing indications to answers to the key questions, however, cannot be used to draw conclusive findings or clinically-based recommendations. The value of the current research is to provide further input based on qualitative evidence and indicative data outcomes into the existing, but relatively limited research currently available in relation to the use of assistance dogs as an adjunct to existing PTSD treatment approaches, and to potentially highlight further avenues requiring or benefiting from further exploration.

As LTU was funded to deliver the Trial, in conjunction with CSTDA, in the interests of ensuring independent evaluation the collection, handling, analysis and interpretation of data and development of discussion and conclusions was conducted solely by Evolution Research staff, Annette Blacklow and Richard Giles. In the interests of maintaining independence, LTU's input into the evaluation report was limited to provision of the literature review. It is acknowledged that the literature review was primarily conducted by Doctor Tiffani Howell and Professor Pauleen Bennett, with input by the evaluators, Annette Blacklow and Richard Giles.

Description of the Trial

The Trial was funded by DVA which committed \$1.9 million for the provision of 20 assistance dogs for veterans with PTSD. This funding covered all required resources for the Trial including: the purchase, training, and provision of the assistance dogs; the participation of 20 veterans with PTSD into the assistance dog training program, aimed at teaching them how to handle and look after an assistance dog; and ongoing maintenance costs for the dogs (e.g., food, veterinary care, ongoing maintenance training by CSTDA).

The following information relating to the implementation of the Trial by LTU and CSTDA provides context to the evaluation activities which will be discussed in following sections. We are grateful to the LTU staff responsible for overseeing implementation of the Trial, Dr. Tiffani Howell and Prof. Pauleen Bennett, for permission to reference information included in this section, from sources that they have developed as they relate to development and implementation of the Trial.

Eligibility pre-screening

To be eligible for participation in the Trial, veteran participants were required to meet the following inclusion criteria:

1. Known DVA client (white or gold card holder);
2. Has PTSD diagnosed by a psychiatrist;
3. Is currently actively engaged in treatment for PTSD with a mental health clinician;
4. Has been engaged in evidence-based treatment for PTSD for a minimum of 6-12 months [e.g., engaged in trauma-focused psychological interventions – trauma-focused cognitive behavioural therapy (CBT) or eye movement desensitisation and reprocessing (EMDR)];
5. The treating clinician believes that an assistance dog could be a valuable adjunct to treatment for the veteran's PTSD and is willing to support the veteran;

² The DVA) Psychiatric Assistance Dog (PAD) Program was announced in 2019 after the Trial was underway, allowing veterans to apply for funding for an assistance dog. The structure of the PAD program mirrors the Trial in that eligibility and funding is the same between the two programs. Further information regarding the PAD is available at: <https://www.dva.gov.au/health-and-treatment/injury-or-health-treatments/mental-health-care/psychiatric-assistance-dogs>

6. Has a nominated GP who is supportive of participation in the Trial;
7. Has stable accommodation that can accommodate a dog;
8. Has the support of family/friends who can assist the participant with the care of the dog if/when required;
9. The veteran and/or their support person(s) understand the commitment involved in caring for an animal;
10. Has abstained from illicit drug use, abuse of prescription drugs and problematic alcohol consumption for the previous 12 months (as far as clinician is aware); and
11. The veteran is capable of giving informed consent to participate in the project at the time that they join the CSTDA program, as determined by their treating clinician.

Participants who met any of the following exclusion criteria at the time of recruitment were excluded from Trial participation.

1. Current serving ADF member;
2. Hospital admission for suicide attempts or self-harm behaviours in the previous 12 months;
3. Current drug and alcohol misuse that is not stabilised;
4. History of family violence;
5. History of animal abuse;
6. Members of their household have a history of animal abuse;
7. Currently pregnant or pregnant person in the household; and
8. Children under the age of two-years-old living in the home.

To be eligible for participation in the Trial, each veteran participant's identified carer/s were required to meet the following criteria:

1. At least 18 years of age;
2. Able to communicate (verbal and written) in English; and
3. Provides regular support to a veteran who has agreed to participate in the project and has been accepted into CSTDA's program.

Prior to being referred for consideration to be recruited to the Trial, each veteran's treating clinician was provided with an information sheet explaining the Trial and evaluation, and a checklist to complete and return to LTU. This checklist ensured that all inclusion and exclusion criteria could be considered prior to a potential participant being put forward to the Trial and also provided the opportunity for the clinician to provide additional information of relevance as to why they considered the veteran to be suitable for the Trial. The checklist was anonymised so that eligibility could be checked without a veteran participant being identifiable to LTU.

Based on the information provided in the checklist, where participants were determined by LTU to meet the required criteria, the treating clinician was then able to provide the veteran's identifying information so that they could be put forward to the next step for recruitment screening. This process required completion of a 'Consent to Contact' form by the veteran prior to the clinician providing their details to LTU.

Recruitment into the Trial

The recruitment screening process involved both LTU and CSTDA to ensure that all participants were fully aware of the requirements of the Trial and the commitment that would be involved. Participants were also advised of the requirement to participate in evaluation activities relating to the Trial. Each veteran and support person was provided with a 'Participant Information Sheet and Consent Form' relating to the Trial and also to the evaluation. All participants had the opportunity to seek clarification

or further information regarding the Trial from LTU/CSTDA and regarding the evaluation activities from Evolution Research.

The recruitment and selection process which followed eligibility pre-screening involved:

1. LTU contacted each potential veteran participant to explain the assessment process and the Trial requirements, and to determine a suitable time to meet with the participant and their support team for the purpose of the assessment.
2. LTU explained and provided each potential veteran participant with a Participant Information Sheet and Consent Form for the Trial and for the evaluation. Participants were provided with the opportunity to ask questions and provided time to decide if they wished to participate in the Trial once they were fully informed of the requirements.
3. CSTDA undertook a comprehensive assessment at the veteran's home prior to formal acceptance in Trial. This assessment included the veteran participant's nominated support person to ensure that they were also fully aware of and supportive of the requirements of them in both the Trial and ongoing in relation to the assistance dog.
4. LTU/CSTDA advised potential veteran participants and their treating clinician of the outcome of the assessment.
5. For participants accepted for the Trial, LTU/CSTDA formally contracted/engaged them, their support team, and their treating clinician, ensuring all participation and evaluation requirements had been understood and consent forms completed. It was expected that veteran participants would continue with their usual treatment with their treating clinician with the Trial forming an adjunct to this treatment.
6. For participants not accepted to the Trial, LTU advised the veteran and their treating clinician of the outcome. It was then anticipated that the veteran would continue with their usual treatment with their treating clinician.

Recruitment of veteran participants took place throughout 2019, with recruitment and assessment activities initially staggered to ensure the process was working effectively. Six participants were approved for acceptance to the Trial in March and April 2019, and the remaining 13 participants assessed and approved between July and December 2019. Commencement in the CSTDA training program commenced following assessment, with scheduling of training activities undertaken in line with CSTDA and veteran capacity.

On acceptance to the Trial, each veteran and support person participant was required to complete the first round of data collection surveys to provide background information and baseline measures for the evaluation. Once these surveys were completed, CSTDA was advised so that the training program could commence.

Assistance dog training program

As part of the Trial, each veteran was required to participate in a year-long training program facilitated by CSTDA trainers, before they could receive an assistance dog to live in their home. During this time, veterans were taught how to work with an assistance dog and engaged in activities that assist them to work towards individual goals designed to impact on their quality of life, such as visiting a local café or engaging in other activities of their choosing.

There was a large commitment required from veteran participants and their support team members and this was explained to all participants prior to acceptance into the Trial. For most veteran participants, as they were located within approximately 100 kilometres of metropolitan Victoria, the year-long therapy dog program required the veteran participants (and where applicable, members of their support team) to engage in training sessions approximately once per week for one to two hours at a time. One veteran participant relocated interstate, with their support person, during the first year

of their training, and three relocated following receipt of their assistance dog. CSTDA therefore adapted the training approach to deliver more intensive training sessions less frequently (such as full-day training sessions once per month). The capacity of each veteran participant in relation to the suitability of this adapted approach was assessed by CSTDA prior to its implementation.

During the training program, participants worked with CSTDA's health psychologist and dog trainers. The program also involved working with a trained dog to facilitate the learning of the required skills before a veteran received their own dog. The program took place in the veteran participant's own community. They learned basic dog management skills, such as lead walking and how much to feed, but also set personal goals which they worked toward attaining during the program. For example, if a veteran participant wished to increase independence through independent use of public transport, their program included activities and strategies to assist them to work towards this goal. The CSTDA on-staff psychologist was available to help the veteran participant to work through any concerns they may have had about engaging in these activities, to ensure that they could take the process slowly and to ensure that the participant's mental health was not at risk. Where appropriate, the CSTDA staff psychologist also maintained contact with the participant's usual treating clinician for the same reason.

The majority of participants were ready to start working with an assistance dog, that was selected and trained specifically in line with their PTSD symptoms and needs, approximately one year after commencing the therapy dog program. The veteran participant's readiness was determined by CSTDA staff, who continued to work with all veteran participants until they reached this point. On reaching this point, the veteran participant and their support team began to work with their own assistance dog, and after several months the dog moved into the veteran participant's home. During this time, CSTDA staff remained in contact with the participants two to three times per week, and participants also had access to an emergency hotline that they could call 24/7 if needed. After the first few months of intensive contact after the assistance dog moved in with the veteran participant, the veteran/assistance dog team underwent a Public Access Test to achieve certification which enabled the veteran participant to take the dog with them into public spaces that are generally off-limits to dogs. For the first six- to nine-months after certification, CSTDA remained in contact with the veteran participant and support team at least once per week. After this point and to the end of the Trial period in 2022, CSTDA staff maintained contact with the veteran on average at least once per month to troubleshoot any issues that were arising. Each veteran/assistance dog team are required to undergo an annual recertification to retain public access rights.

The Trial was funded by DVA for its duration. On completion of the Trial, custodianship of each assistance dog was transferred to the veteran provided that: they had informed LTU in writing that they wished to take custodianship of the assistance dog; their supervising mental health clinician provided LTU with written approval for them to take custodianship of the assistance dog; and LTU and CSTDA were otherwise satisfied that the assistance dog's welfare will not be put at risk through the transfer to the veteran. From the point of transfer of custodianship all evaluation activities ceased. Ownership of the dog remains with CSTDA for the duration of the dogs working life.

All Trial participants were transferred to DVA's Psychiatric Assistance Dogs Program on completion of the Trial. Through this, DVA will provide ongoing financial assistance towards the cost of the assistance dog's upkeep for the remainder of its working life, with the amount of financial assistance, to the extent practical, to a limit set by DVA and published on the DVA website.

An overview of the Trial training and monitoring program is provided in Figure 1.

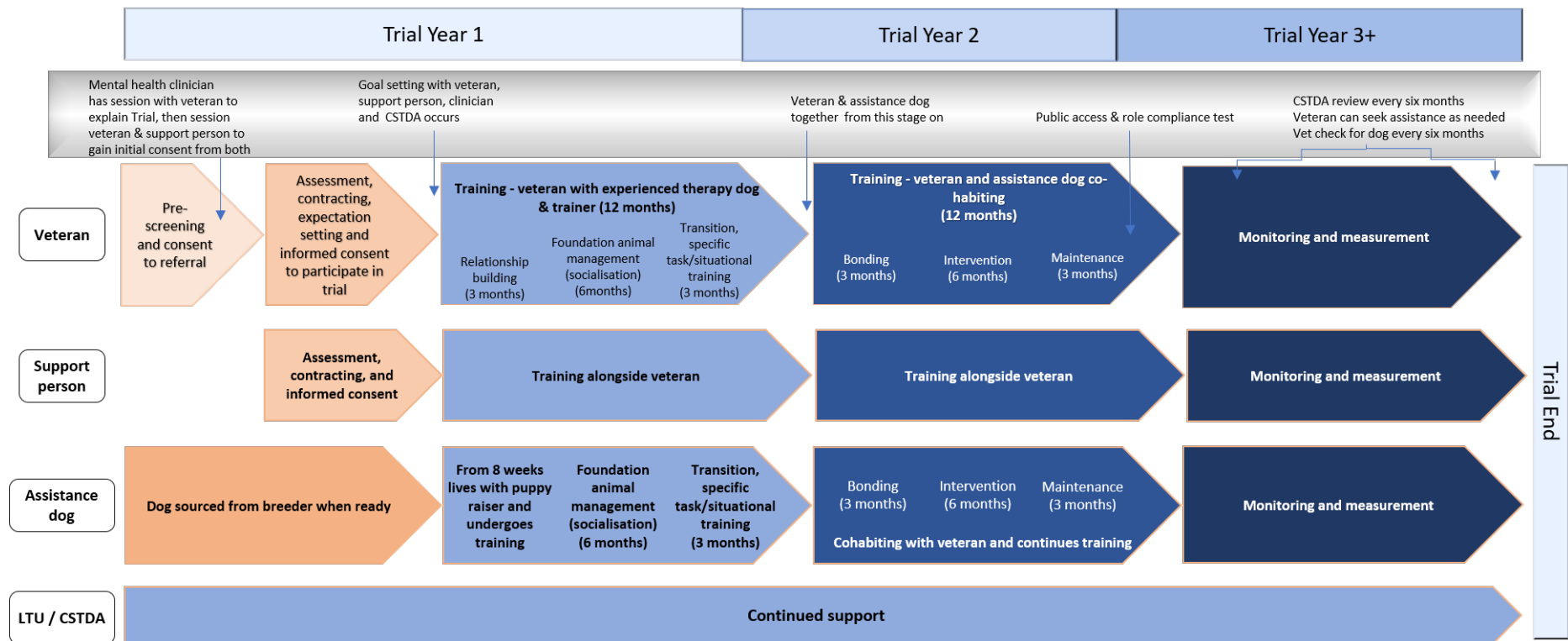


Figure 1: LTU overview of Assistance Dog Trial training and monitoring program

Literature review

Introduction to the literature review

Post-traumatic stress disorder (PTSD) can develop in people who have been through a traumatic experience, and it is estimated to affect up to 30% of veterans (Reisman, 2016). In considering the Australian context, The Mental Health in the Australian Defence Force: 2010 ADF Mental Health Prevalence and Wellbeing Study Report (McFarlane et al., 2011) found that the prevalence of PTSD was significantly higher in ADF personnel as compared to the Australian population (8.3 per cent compared to 5.2 per cent), with this difference being even more significant for ADF males as compared to the general Australian male population (8.1 per cent compared to 4.6 per cent). The Department of Defence indicates that presentation of symptoms of PTSD varies across individuals and can develop immediately following exposure; or more commonly, gradually increase in range and intensity; or be sudden and dramatic, presenting as a 'breakdown' occurring sometime after exposure (Department of Defence, n.d.). It also indicates that ADF members who have never deployed, experience PTSD at the same rate as those who have deployed, and that length of deployment is not a useful marker of risk for PTSD. However, it notes that the number and type of traumas, as well as roles on deployment, may assist to identify those most at risk. The growing significance of PTSD in veterans was further highlighted through an Australian Government Senate Inquiry held in 2015-16 concerning the mental health of Australian Defence Force (ADF) personnel who had returned from combat, peacekeeping or other deployment, with particular focus on mental ill-health and PTSD (Parliament of Australia, 2016).

PTSD is characterised by hypervigilance, re-living the traumatic event (e.g., nightmares, flashbacks/dissociation), and avoidance of stimuli associated with the event (American Psychiatric Association, 2013). Co-morbidities (e.g., substance abuse, depression) are common (Reisman, 2016). Evidence-based treatments for PTSD include prolonged exposure therapy, cognitive-processing therapy, and eye movement desensitization and reprocessing (American Psychiatric Association, 2013). Unfortunately, non-response rates for the evidence-based treatments can be as high as 50% (Schottenbauer et al., 2008). Therefore, other supports should be made available for this population.

Assistance dogs, which are trained to a high standard of behaviour and hygiene, and to mitigate the impacts of a veteran's PTSD, may be one such support. Assistance dogs have been employed since World War I primarily as guide dogs for people with a vision impairment (Ostermeier, 2010). In recent years, however, the work done by assistance dogs has expanded into other types of disability support, including autism assistance, epilepsy/diabetes alert, mobility assistance, and psychiatric assistance (Howell et al., 2016).

The term assistance animal or, more commonly, assistance dog, refers to just one of several roles that animals can play in providing support to people with mental health conditions. There can sometimes be confusion between a psychiatric assistance dog, for example, and a therapy dog, emotional support dog, or companion dog. A psychiatric assistance dog lives with the person with disability who they are supporting, and they must perform specific trained tasks which mitigate the impact of this handler's disability (Howell et al., 2019). These tasks may or may not be command dependent. For example, an assistance dog may be trained to respond to a command from her handler to find a way to exit a room safely, and she may also be trained to wake the handler from a nightmare by pawing them until they wake up, even when the handler is sleeping and unable to command them to do so. Because assistance dogs are a legally recognised disability support (Australian Human Rights Commission, 2016), they are entitled to go almost everywhere that their owner would go (Australian Human Rights Commission, 2016; Howell et al., 2019). It is this combination of disability-specific task training and advanced behaviour training standards required for public access, that defines an assistance dog (Howell et al., 2019).

A therapy dog, by contrast, is a dog owned by a qualified healthcare professional, who works with the owner as part of goal-directed, structured therapy programs (Howell et al., 2019). Therapy dogs are often assessed for temperament and behaviour suitable for working in a public-facing role, but this is not legally required. The term emotional support dog typically refers to a pet dog that lives with a person who has a diagnosed mental health condition, which may or may not constitute a disability, and that provides the person with some mental health benefit (Howell et al., 2019). No training is required to become an emotional support animal and these animals have no legal rights beyond those associated with other pet animals. Finally, the term companion animal is synonymous with pet: referring to an animal that lives with a person, with no special training required (Howell et al., 2019). That person may or may not experience wellbeing benefits from the pet-owner relationship. Unlike assistance dogs, none of these animals have public access rights because they are not recognised disability supports.

Popular media often reports that assistance dogs can help veterans with PTSD manage the impacts of their disability, especially for veterans with treatment-resistant PTSD. This is of particular relevance in countries with a large number of veterans, such as the United States of America (USA), with around 19 million veterans (National Centre for Veterans Analysis and Statistics, 2019), Canada, with around 630,000 (Veterans Affairs Canada, 2021), and Australia, with around 640,000 veterans (Australian Institute of Health and Welfare, 2018). The scientific evidence underlying these claims has rarely been interrogated to understand whether, and how, assistance dogs can provide support in this context. The aim of this literature review is to characterise the existing evidence base for assistance dogs as an adjunct to treatment for veterans with PTSD.

The methodological approach to the literature review is included in Appendix A: Literature review - Methodology.

Results and discussion of the literature review

A summary of the 34 studies of relevance to the literature review is provided in Table 1.

Table 1: Studies included in the systematic literature review

| Reference | Location | N* | Design | Measures | Results | Controls |
|---------------------------|----------|---------------------------|---|---|--|---|
| Bergen-Cico et al 2018 | US | 48 (34 AD, 14 WL) | Quantitative – validated self-report | PCL-M, PSS, SCS-SF composite plus subscales for isolation, self-judgement | Significant improvements to all measures over time in AD group, but not below clinical cut-point for PTSD. No change to any measures in WL group | Waitlist (WL); repeated measures 12 month follow up |
| Crowe, Nguyen et al 2018 | US | 6 | Qualitative – subjective, not validated | Interviews | Overarching theme: improved occupational performance in home | None |
| Crowe, Sanchez et al 2018 | US | 9 | Qualitative – subjective, not validated | 2 focus groups (3 veterans/group) and 3 individual interviews | Themes re: moving from isolation to reintegration in society | None |
| Galsgaard & Eskelund 2020 | Denmark | 4 | Case reports – validated self-report | PCL-C, WHO-5; unvalidated – emotional regulation; social and physical activity; sleep quality; quality of life; substance abuse | Descriptive results only, no inferential statistics. PTSD symptoms: some participants showed improvement, others less so. One showed improvement possibly indicating loss of PTSD diagnosis. Other measures similar - some improvements but not always | Repeated measures before receiving puppy, then after 10 and 16 months |
| Goldblatt 2019 | US | 1 | Case report – subjective, not validated | Clinician reflections on clinical sessions | In one session, veteran's dog indicates a stress response or similar in veteran when discussing returning to work in military. This helped clinician quickly realise that this was a stressful point for the veteran. In another session, AD indicated clinician's own stress response to a story told by the veteran. | None |
| Husband et al 2020 | Canada | 4 | Qualitative – subjective, not validated | Interviews after AD arrived | Veterans described reduction in prescribed medication and illicit substance use after receiving AD | None |
| Jensen et al 2021 | US | 186 (112 AD, 74 WL) | Quantitative – validated self-report | PCL-5 | Total PCL scores 14.6 points lower in AD group compared to WL with large effect size, but not below clinical cut-off. Presence of AD accounted for 16.3% of variance in symptoms in AD group; no effect of demographics or time since receiving AD | Waitlist |
| Kloep et al 2017 | US | 12 | Quantitative – validated self-report | DAR-5; PCL-S; PSSS; QIDS; QOLS; | Improvements in nearly all outcome measures apart from quality of life. All reported clinically significant improvements in PTSD symptoms, and 67% clinically significant reduction in depression at 6-month follow-up | Repeated measures pre-, during, and 6 |

| | | | | | | months post training/provision |
|-------------------------------|--------|---|---|--|--|--|
| Krause-Parello & Morales 2018 | US | 21 | Qualitative – subjective, not validated | Interviews after AD arrived | Challenges with psychosocial functioning before AD. High costs and long waits associated with AD procurement. AD provides emotional, therapeutic, and family benefits, but public ignorance and high maintenance costs challenging | None |
| LaFollette et al 2019 | US | 111 | Quantitative – validated self-report | Modified C-BARQ; PCL-5; IOS; unvalidated – dog training methods | PTSD symptom severity not associated with AD behaviour, character, or AD-owner bond. Many training styles reportedly used, including punishment and rewards. Veterans extremely close to AD. | None |
| Lessard et al 2020. | Canada | 18 | Quantitative – physiological (actigraphy) + validated self-report | Actigraphy; BDI; LSA; PCL-M; PSQI | Actigraphy: significant increase in moderate activity post-AD with moderate effect size. No change to sleep amount, efficiency, night-time awakening or wake after sleep onset. Surveys: significant, moderate improvement in mobility patterns. No changes in total sleep time but improvements in efficiency (moderate effect), sleep disturbances (large effect), sleep quality (moderate effect). Significant decrease with large effect for total PTSD symptoms and subscales for hyperarousal, avoidance, intrusion, and depressive symptoms | Repeated measures before and 9 months after AD placement |
| Lessard et al 2018 | Canada | 10 | Qualitative – subjective, not validated | Interviews 2-4 years after AD provision | Benefits of AD: companionship; improvements in medication intake, PTSD symptoms, physical activities and outings, feelings of security, and social interactions. Challenges: difficulties with procurement, dog health, reactions from others, ongoing dog maintenance | None |
| McCall et al 2020 | US | 60 partner-veteran dyads (37 AD, 23 WL) | Quantitative – validated self-report | BSPW; CDRS-10; FAD; PCL; PHQ; PROMIS anger, anxiety, depression, social isolation, companionship, social activity ability; VR-12; WPAI; RAS; unvalidated – open-ended survey items | Validated measures: No significant differences between groups, but some partner measures had small improvements: anger, resilience, social isolation, companionship, work impairment (health), relationship satisfaction, general family functioning, affective responsiveness. Open-ended survey items from partners: improvements in veteran functioning, partner quality of life and social, mental, and work functioning. Family and relationship benefits. Challenges include unwanted attention in public, costs of caring for dog. | Waitlist |

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|---------------------------------|-----------|-------------------------------|---|--|--|---|
| McLaughlin & Hamilton 2019 | Australia | 7 | Qualitative – subjective, not validated | Focus groups (2, max n = 5 each) | Themes relating to isolation and substance abuse before receiving AD. Benefits of AD include perceived safety, improved mood, reduction in destructive behaviour, suicide prevention, and feeling part of a team. Challenges include high costs and the short working life of the AD | None |
| Nieforth, Craig, et al 2021 | US | 101 (67 veterans, 34 spouses) | Qualitative – subjective, not validated | Open-ended survey items | Benefits include improvements in outcomes due to the AD's trained role, improvements in mental health and positive social interactions within the family, reductions in spouse's stress. Challenges include the AD adding to caregiver burden, adjusting to living with and training an AD, disruptions to veteran relationships with family members, public stigma | None |
| Nieforth, Rodriguez, et al 2021 | US | 128 (69 AD, 59 WL) | Qualitative – subjective, not validated | Open-ended survey items | Benefits include improvements in mental health, outcomes improved via the AD's trained tasks, and companionship. Challenges include unwanted public attention and public perceptions, difficulties with public access and travel. Challenges noted more often by AD group than WL group. | Waitlist |
| O'Haire & Rodriguez 2018 | US | 141 (75 AD, 66 WL) | Quantitative – validated self-report | ALSPHE; BSPW; CDRS; PCL; PHQ-9; PROMIS social activity ability, social isolation, companionship; SWLS; VR-12; WPAI | No significant differences between groups on number or frequency of usual treatments, but AD group significantly higher on overall perceived improvement from treatment, with medium effect size. Clinically meaningful difference in PTSD symptoms during AD period compared to WL, and significantly lower PTSD symptoms than WL group, but not below clinical cut-point. AD group better in all other areas compared to WL group | Waitlist; repeated measures pre- and post-AD provision for AD group |
| Rodriguez et al 2020 | US | 217 (124 AD, 83 WL) | Quantitative – validated self-report | PCL; IOS; unvalidated – importance of trained and untrained tasks; frequency of trained task use; symptom specificity of trained tasks | AD performed trained tasks for veteran 3 times/day on average. Calming anxiety was most important and most frequent task; interrupting or alerting to anxiety and watching the veteran's back were 2nd and 3rd most important, respectively. Importance of untrained behaviours (e.g., companionship, love, independence) rated more important than trained tasks. No effect of symptom severity on importance of trained or untrained tasks, or frequency of task use. For WL group, symptom severity was significant predictor of expected importance of trained tasks and task frequency, but not untrained behaviours. | Waitlist |

| | | | | | | |
|----------------------------|----|---|---|---|---|----------------------|
| Rodriguez et al 2021 | US | 129 (67 AD, 62 WL) | Quantitative – validated self-report | PCL-C; VR-12 physical component; unvalidated – medication use | PTSD symptoms significantly lower for AD group than WL, but still above clinical cut-off. WL more likely to report no change to medication or increased dose, AD group more likely to report decreased dose or removed a medication. No significant differences for adding a medication or medication types | Waitlist |
| Rodriguez et al 2018 | US | 73 (45 AD, 28 WL) | Quantitative – physiological (cortisol) | Salivary cortisol; PCL; PROMIS anxiety, anger, alcohol use, sleep disturbance; PSQI; VR- 12 physical component unvalidated – medication use | AD group had higher cortisol awakening response than WL. AD group significantly better on all outcome survey measures than WL, with large effect sizes | Waitlist |
| Scotland-Coogan et al 2020 | US | 55 | Quantitative – validated self-report | TSI-2 | Significant reduction in PTSD symptoms after AD program compared to before | Repeated measures |
| Scotland-Coogan 2019a | US | 15 | Qualitative – subjective, not validated + researcher observations of AD | Interviews during AD training program | Anxiety and sleep disturbances reduced due to AD | None |
| Scotland-Coogan 2019b | US | 15 | Qualitative – subjective, not validated | Interviews during AD training program | Reductions in anger, physical/verbal abuse, difficulty being in public. Family relationships improved and friendships increased due to AD program. | None |
| Stern et al 2013 | US | 30 | Quantitative – validated self-report | BDI; LAPS; PCL-M; Veterans SF-36; unvalidated – dog info sheet and dog relationship questionnaire | Self-reported improvements in mental health after AD arrival, strong perceptions of AD loving the person. PTSD symptom scores remained above clinical cut-off. Depression levels were moderate to severe; overall quality of life was 1.5 to 2.0 standard deviations below the norm for US residents | None |
| Taylor et al 2013 | US | 19 media reports including veteran, reporter, and social media comments | Qualitative – subjective, not validated | News reports - veteran, reporter, and social media comments analysed separately before triangulation | Veterans report improvements on many PTSD symptoms, including suicidality. AD provides feelings of safety, protection, and affection. ADs are a non-stigmatising treatment. Question about whether a pet dog could do just as well as an AD due to lack of empirical evidence | None |

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|--|-----------|--|---|--|--|--|
| Vincent, Belleville, Gagnon, Auger et al 2017 | Canada | 22 (12 trainers, 4 vet advocates, 2 AD owners, 3 medical doctors, 1 general standards board member) | Qualitative – subjective, not validated | Interviews | Usually veterans with treatment-resistant PTSD/residual symptoms seek AD in Canada. Common AD roles are to alert to anxiety, provide feelings of safety, and encourage the veteran to relax and socialise. Benefits include reduced medication use and hypervigilance, and improved sleep, mood, concentration, self-confidence, and public outings/social participation. Challenges include public access difficulties and stigma | None |
| Vincent et al 2019 | Canada/US | 22 | Quantitative – validated self-report | BDI; LSA; PCL-M; PIADS; PSQI; WHOQOL-BREF | Significant reduction in PTSD symptoms before versus 6-months post-AD provision, but not below clinical cut-point; sleep quality, quality of life, and mobility improved; social interactions within community increased; depression symptoms decreased | Repeated measures 6mo, 3mo, 1-2 weeks before, and 3, 6, 9, 12mo after |
| Vincent, Belleville, Gagnon, Dumont et al 2017 | Canada/US | 15 | Quantitative – validated self-report | BDI; LSA; PCL-M; PSQI; WHOQOL-BREF | After 3 months, significant improvement in sleep, PTSD symptoms, depression, and social relationships. No significant improvement in daily/social functioning in community or other aspects of quality of life | Repeated measures 6mo, 3mo, 1-2weeks before, and 3mo after |
| Whitworth et al 2019 | US | 30 (15 AD, 15 WL) | Quantitative – validated self-report | TSI-2; WHODAS | Significant differences between groups: TSI-2 factors self-disturbance, post-traumatic stress, and externalisation; WHODAS total score, getting around, getting along with people, and participation in society. AD group post-training had improved outcomes compared to WL | Waitlist; repeated measures before and after 14-week AD training program |
| Whitworth et al 2020 | US | 15 partners of veterans | Quantitative – validated self-report | PCL-5; RAS | PTSD symptoms on PCL: mean = 43 (<i>SD</i> = 17), range 20-80. Relationship quality on RAS: mean = 29 (<i>SD</i> = 4), range 22-35. Interviews: Benefits of AD include improved mood, anger management, and autonomy for veteran, reductions in carer burden and impact of PTSD/TBI symptoms, improved communication skills and relationships with family members | None |
| Williamson et al. 2021 | Canada | 5 | Quantitative – validated self-report + qualitative interviews | DUSI-R substance use subscale; PCL-5; unvalidated – interviews | PTSD symptoms gradually decreased through 9 months post-provision, but then increased again at 12-months post-provision. Same with substance use. Interviews: PTSD symptoms better managed with AD, but some veterans complained about training | Repeated measures at baseline, 1, 3, 6, 9, and 12 months |

| | | | | | | |
|-------------------------|----|---|---|---|--|---|
| | | | | | schedule frustrations and public access problems, which could sometimes cause anxiety. Most veterans reported reduced substance use due to working with AD, indicating the need to stay sober to work with dog. Opioid medication use varied, medical cannabis was common | |
| Yarborough et al, 2017 | US | 78 (24 AD, 54 WL - 22 received AD during study) | Quantitative – validated self-report | BASIS-24; DRRRI combat exposure subscale; GSS; PCL-C; VR-12; W-QLI unvalidated – stress levels in previous year; usual hours slept; types of help from AD | Significant differences between groups at baseline VR-12 mental component summary, depression, functioning, interpersonal relationships, PTSD symptoms, general happiness, and quality of life. Among veterans who received AD during study, significant improvements over time on Veteran RAND mental component summary, depression, functioning, emotional liability, PTSD symptoms, activity levels, happiness, and quality of life. Moderate effect sizes (but not significant) for substance abuse and interpersonal relationships. | Waitlist; repeated measures for WL who received AD during study |
| Yarborough et al, 2018. | US | 41 veterans with AD and 8 caregivers | Qualitative – subjective, not validated + researcher observations of AD | Interviews and researcher observations of AD training sessions | Benefits: reduced hypervigilance and flashbacks, suicidality, reliance on medication, improved sleep quality, social connections. Challenges: underestimating the commitment required to care for an AD; stressful and tiring training process, initial social outings with AD can be overwhelming; it can take time to realise benefits of AD; caregivers can struggle to relinquish control and let AD help | None |
| Yount et al, 2019 | US | 1 | Case report – subjective, not validated | Interview | Benefits: improved sleep, more relaxed, better with his children, reduced pain, better moods, better concentration | None |

*AD = assistance dog owner group; WL = waitlist control group

Measures **ALSPHE**: American Legion Survey of Patient Healthcare Experiences; **BASIS-24**: Behaviour and Symptom Identification Scale; **BDI II**: Beck Depression Inventory II; **BSPW**: Bradburn Scale of Psychological Wellbeing; **C-BARQ**: Canine Behavioral Assessment and Research Questionnaire; **CDRS**: Connor Davidson Resilience Scale; **CDRS-10**: Connor Davidson Resilience Scale - 10 items; **DAR-5**: Dimensions of Anger Reactions – 5; **DRRI**: Deployment Risk and Resilience Inventory–2; **DUSI-R**: Drug Use Screening Inventory; **FAD**: McMaster Family Assessment Device; **GSS**: General Social Survey; **IOS**: Inclusion of Other in the Self Scale; **LAPS**: Lexington Attachment to Pets Scale; **LSA**: Life Space Assessment; **PCL**: PTSD Checklist; **PCL-5**: PTSD Checklist for DSM-V; **PCL-C**: PTSD Checklist - Civilian Version; **PCL-M**: PTSD Checklist - Military Version; **PCL-S**: PTSD Checklist – Specific; **PHQ-9**: Patient Health Questionnaire; **PIADS**: Psychosocial Impact of Assistive Device Scale; **PROMIS**: Patient-Reported Outcomes Measurement Information System; **PSQI**: Pittsburgh Sleep Quality Index; **PSS**: Perceived Stress Scale; **PSSS**: Post-deployment Social Support Scale; **QIDS**: Quick Inventory of Depressive Symptomology; **QOLS**: Quality of Life Scale; **RAS**: Relationship Assessment Scale; **SCS-SF**: Self-Compassion Scale Short Form; **SWLS**: Satisfaction with Life Scale; **TSI-2**: Trauma Symptom Inventory-2; **Veterans SF-36**: Veterans 36-item Short Form Health Survey and Health Behaviors Questionnaire; **VR-12**: Veterans RAND 12-Item Health Survey; **WHO-5**: World Health Organisation Five Well-Being Index; **WHODAS**: World Health Organization Disability Assessment Schedule; **WHOQOL-BREF**: The Brief World Health Organization Quality of Life Questionnaire; **WPAI**: Work Productivity and Activity Impairment Questionnaire; **W-QLI**: Wisconsin Quality of Life Index

As shown in Table 1, the earliest included studies were published in 2013, indicating that research in this area has been taking place for less than a decade. Furthermore, of the 34 included studies, 28 have been published since 2018, reflecting increasing interest in this topic in recent years. Most (n=25) of the studies were based in the United States (US), while five were based in Canada, and two were based in both Canada and the US. Just one study was based in Australia, and one was based in Denmark.

Research design features

Research design varied. Two studies were based on subjective case reports, and a third case report study used validated surveys. Of the remaining 31 studies, 19 incorporated quantitative measures, and 12 employed qualitative methods. In most included studies, a fully trained and certified assistance dog was provided to the veteran from a training organisation, but in seven studies, the veterans participated in an owner-trainer program with support from a training organisation (Bergen-Cico et al., 2018; Crowe, Nguyen, et al., 2018; Crowe, Sanchez, et al., 2018; Galsgaard & Eskelund, 2020; Scotland-Coogan, 2019a, 2019b; Scotland-Coogan et al., 2020).

Over half (n=19) of the studies employed validated survey instruments, while two also incorporated physiological measures. One study measured sleep and activity levels using actigraphy (Lessard et al., 2020), and another measured salivary cortisol awakening response (Rodriguez et al., 2018). The remaining 15 studies relied solely on subjective measures which have not been previously validated. Half (n=17) of the studies included no control of any kind, while seven studies used repeated measures before and after the participant received their dog, six studies used a control group of people on a waitlist to receive an assistance dog, and four studies employed both repeated measures and a waitlist control.

Sample sizes varied considerably, with two case reports including just one participant each, and the largest sample size exceeding 200 participants. Seven studies included over 100 participants, and eight studies included fewer than 10. The average sample size across all studies was 49 participants.

There were 39 different validated survey instruments employed in the quantitative studies. Of the 19 studies that incorporated these measures, 17 used a version of the PTSD Checklist (i.e., PCL-5) to investigate PTSD symptoms (Weathers et al., 1993), making it the most commonly used measure among the included studies. The remaining two quantitative studies used the Trauma Symptom Inventory – 2 (Godbout et al., 2016) to measure PTSD symptoms. Quality of life and other outcomes were measured using a variety of different instruments, such as the Veteran RAND 12-item measure of health-related quality of life (Selim et al., 2009) used in five studies, and the Pittsburgh Sleep Quality Index (Buysse et al., 1989) and Beck Depression Inventory – II (Steer et al., 1997) used in four studies each, among others.

Scientific rigour in this research area has improved considerably in recent years, with large sample sizes, validated measures, and controls included in many of the studies. To evaluate the scientific rigour of the evidence base for assistance dogs supporting veterans with PTSD, each study was subjected to a risk of bias analysis using Cochrane Collaboration's tool for assessing risk of bias (Higgins et al., 2011). The results of this analysis are detailed in Appendix A.

Benefits

Taken together, these studies provide evidence of considerable benefits of assistance dogs for veterans with PTSD. In most studies which included a validated measure of PTSD symptoms, a reduction in symptom severity was observed after receiving the assistance dog compared to before (Galsgaard & Eskelund, 2020; Kloep et al., 2017; Lessard et al., 2020; Scotland-Coogan et al., 2020; Vincent, Belleville, Gagnon, Dumont, et al., 2017; Vincent et al., 2019; Williamson et al., 2021; Yarborough et al., 2017), although symptoms typically remained above the clinical cut-off for PTSD

(Bergen-Cico et al., 2018; Jensen et al., 2020; O'Haire & Rodriguez, 2018; Rodriguez et al., 2021; Steer et al., 1997; Vincent, Belleville, Gagnon, Dumont, et al., 2017; Vincent et al., 2019). That is, the veterans still had PTSD, but their symptoms were improved. In one repeated measures study, however, PTSD symptoms gradually decreased until 9 months after the five veterans received their assistance dog, but then increased again 3 months later (Williamson et al., 2021). In another small study, one of the four participants showed improvement in PTSD symptoms that might indicate loss of the PTSD diagnosis, but the other three did not (Galsgaard & Eskelund, 2020). In studies comparing veterans with an assistance dog and those on a waitlist to receive one, the assistance dog group typically rated lower on PTSD symptoms than the waitlist control group (Jensen et al., 2020; McCall et al., 2020; O'Haire & Rodriguez, 2018; Rodriguez et al., 2021; Rodriguez et al., 2018; Whitworth et al., 2020; Yarborough et al., 2017).

In addition to improvements in PTSD symptoms, many studies included other outcome measures. Mental health comorbidities such as depression (Lessard et al., 2020; Vincent, Belleville, Gagnon, Dumont, et al., 2017; Vincent et al., 2019), anxiety (Rodriguez et al., 2018; Rodriguez et al., 2020; Scotland-Coogan, 2019a; Vincent, Belleville, Gagnon, Auger, et al., 2017), and substance abuse (Galsgaard & Eskelund, 2020; Husband et al., 2020; McLaughlin & Hamilton, 2019; Williamson et al., 2021) typically improved after assistance dog provision and/or compared to a waitlist control group. One study found a non-statistically significant but moderate positive effect of the assistance dog on substance abuse (Yarborough et al., 2017). In two qualitative studies, suicidality also reportedly decreased (McLaughlin & Hamilton, 2019; Taylor et al., 2013).

In studies considering physical health, pain (Crowe, Nguyen, et al., 2018; Yount et al., 2019), physical activity (Galsgaard & Eskelund, 2020; Lessard et al., 2020; Lessard et al., 2018; O'Haire & Rodriguez, 2018), and mobility (Lessard et al., 2020; Vincent et al., 2019; Whitworth et al., 2019) typically improved. Some studies showed reduced reliance on prescription medication (Crowe, Nguyen, et al., 2018; Husband et al., 2020; Lessard et al., 2018; Rodriguez et al., 2021; Vincent, Belleville, Gagnon, Auger, et al., 2017; Williamson et al., 2021), but one study found no statistically significant differences between assistance dog owners and a waitlist control on the type of medications used or the likelihood of adding a medication (Rodriguez et al., 2021). One study found no statistically significant differences between assistance dog owners and waitlist controls on frequency of usual treatments (O'Haire & Rodriguez, 2018), but assistance dog owners reported higher perceived improvement from treatments than the control group. In one retrospective study, even though veterans reported improvements in mental health since receiving their assistance dog, depression levels were still rated as moderate to severe, and quality of life was up to two standard deviations below the norm for US residents (Stern et al., 2013).

Some of the commonly measured aspects of general functioning and quality of life included sleep (Crowe, Nguyen, et al., 2018; Galsgaard & Eskelund, 2020; Lessard et al., 2020; Rodriguez et al., 2018; Scotland-Coogan, 2019a; Vincent, Belleville, Gagnon, Auger, et al., 2017; Vincent, Belleville, Gagnon, Dumont, et al., 2017; Vincent et al., 2019; Yarborough et al., 2018; Yount et al., 2019), mood (McLaughlin & Hamilton, 2019; Taylor et al., 2013), anger (Kloep et al., 2017; Rodriguez et al., 2018; Scotland-Coogan, 2019b; Whitworth et al., 2020), feelings of security (Crowe, Nguyen, et al., 2018; Lessard et al., 2018; McLaughlin & Hamilton, 2019; Taylor et al., 2013; Vincent, Belleville, Gagnon, Auger, et al., 2017), and companionship or feeling close to the dog (LaFollette et al., 2019; Lessard et al., 2018; Nieforth, Rodriguez, et al., 2021; Rodriguez et al., 2020; Taylor et al., 2013). Overall quality of life was also measured (Galsgaard & Eskelund, 2020; Kloep et al., 2017; Vincent, Belleville, Gagnon, Dumont, et al., 2017; Vincent et al., 2019; Yarborough et al., 2017). Improvements in all of these outcomes were commonly observed, although there were exceptions. One small study showed varying levels of improvement in quality of life measures (Galsgaard & Eskelund, 2020), while another study did not find statistically significant improvements in overall quality of life (Kloep et al., 2017). A study which incorporated actigraphy and survey measures found no change to various elements of

sleep (i.e., efficiency, amount, frequency of awakenings at night, wake after sleep onset), but veterans reported improved sleep quality and efficiency, and reduced sleep disturbances, in surveys (Lessard et al., 2020).

One study found that salivary cortisol awakening response was higher in assistance dog owners compared to a waitlist control (Rodriguez et al., 2018). Cortisol is a measure of arousal, with higher levels indicating increased arousal (Stratakis & Chrousos, 1995). Therefore, it is perhaps counter-intuitive that the presence of an assistance dog would be associated with an increase in cortisol awakening levels, since many veterans have reported that the dog encourages relaxation and reduces their anxiety (Rodriguez et al., 2020). However, people with PTSD typically have lower awakening cortisol levels than the general population (Boggero et al., 2017), and this is believed to be due to the hypothalamic-pituitary-adrenocortical (HPA) axis downregulating to cope with the high arousal levels regularly experienced by people with PTSD (Clow et al., 2010). Therefore, higher cortisol levels in the assistance dog group may indicate that the HPA axis is returning to a typical baseline, which would represent a reduction in overall stress levels.

Social benefits were observed in some studies, including improvements in family functioning (Crowe, Nguyen, et al., 2018; Krause-Parello & Morales, 2018; Nieforth, Craig, et al., 2021; Scotland-Coogan, 2019b; Whitworth et al., 2020), increased participation in society (Crowe, Sanchez, et al., 2018; Galsgaard & Eskelund, 2020; Lessard et al., 2018; O'Haire & Rodriguez, 2018; Vincent, Belleville, Gagnon, Auger, et al., 2017; Vincent et al., 2019; Whitworth et al., 2019), and getting along better with others (Crowe, Nguyen, et al., 2018; Scotland-Coogan, 2019b; Vincent, Belleville, Gagnon, Auger, et al., 2017; Vincent, Belleville, Gagnon, Dumont, et al., 2017; Whitworth et al., 2019; Yarborough et al., 2017; Yarborough et al., 2018). Just one study found no improvements in social functioning within the community after receiving the assistance dog compared to before (Whitworth et al., 2019).

Challenges

In addition to the benefits of assistance dogs, challenges were also highlighted in eight studies (Krause-Parello & Morales, 2018; Lessard et al., 2018; McLaughlin & Hamilton, 2019; Nieforth, Craig, et al., 2021; Nieforth, Rodriguez, et al., 2021; Vincent, Belleville, Gagnon, Auger, et al., 2017; Williamson et al., 2021; Yarborough et al., 2018). These can be divided into two overarching themes: assistance dog procurement and maintenance, and the responses of the general public to the AD. In terms of acquiring and managing the assistance dog, long waits (Krause-Parello & Morales, 2018) and high costs (Krause-Parello & Morales, 2018; McLaughlin & Hamilton, 2019) were noted. Similarly, adjusting to living with an assistance dog and the training process can be stressful (Lessard et al., 2018; Nieforth, Craig, et al., 2021; Williamson et al., 2021; Yarborough et al., 2018). There were also concerns about the dog's health and short working life (Lessard et al., 2018; McLaughlin & Hamilton, 2019). The responses of the general public could be challenging due to public ignorance of assistance dogs, for example, by people approaching the dog and distracting her from her work, or because the veteran felt a sense of stigma when in public (Krause-Parello & Morales, 2018; Lessard et al., 2018; Nieforth, Craig, et al., 2021; Nieforth, Rodriguez, et al., 2021; Vincent, Belleville, Gagnon, Auger, et al., 2017). Also noted were difficulties in accessing public places where assistance dogs are legally entitled to go, but which are typically off-limits to pet dogs (Nieforth, Rodriguez, et al., 2021; Vincent, Belleville, Gagnon, Auger, et al., 2017; Williamson et al., 2021). Travel was identified as a particularly challenging context for public access in one study (Nieforth, Rodriguez, et al., 2021).

Support person burden

Just four studies investigated the impact of assistance dogs on partners or their support person/caregiver (McCall et al., 2020; Nieforth, Craig, et al., 2021; Whitworth et al., 2020; Yarborough et al., 2018). Among these, results were mixed. One study found a reduction in support person burden (Whitworth et al., 2020), and another found that the dog reduced partner stress while simultaneously

placing an additional care burden on the partner (Nieforth, Craig, et al., 2021). In a third study, there were no statistically significant differences between partners of veterans with an assistance dog compared to partners of veterans on a waitlist on a variety of validated outcome measures (McCall et al., 2020). In that same study, findings from open-ended survey questions completed by partners indicated improvements in partner quality of life and family/relationship functioning. Finally, the fourth study found that support persons can sometimes struggle with letting the assistance dog assume some responsibility for supporting the veteran, when they are accustomed to filling that role themselves (Yarborough et al., 2018). Therefore, it is not possible to draw firm conclusions from existing research about the impact of assistance dogs on support persons.

How assistance dogs help veterans with PTSD

Two studies offered specific insights into how assistance dogs might benefit the handler. One study investigated the frequency and importance of various PTSD-specific tasks performed by the dogs, as well as untrained behaviours or dog characteristics that may help veterans manage their PTSD (Rodriguez et al., 2020). The trained behaviours monitored were to alert/interrupt anxiety, calm anxiety, create space for the veteran when in public and/or 'protect' the veteran from others, watch the veteran's back, wake from a nightmare, and help the veteran to greet others. Untrained characteristics or behaviours included in the study were provision of companionship and love, being non-judgemental, giving the veteran a sense of calm, happiness, or independence, permitting the veteran to leave the house or connect to family, providing a routine for the veteran, and helping the veteran make friends (Rodriguez et al., 2020).

Veterans were asked to indicate how often the assistance dog performed their trained tasks, and how important each task was to the veteran's ability to manage their PTSD (Rodriguez et al., 2020). They were also asked to rate the importance of the untrained behaviours or characteristics of the assistance dog in supporting their PTSD. The most commonly performed task, and the most important trained task for the veteran, was to calm or comfort the veteran's anxiety, which occurred over four times per day, on average. Interrupting or alerting to anxiety was the second most important task, and the third most frequent. Watching the veteran's back was the third most important task, and the second most frequent. The most important untrained characteristic was provision of love, followed by companionship and making the veteran feel calm. Untrained characteristics were rated as more important for helping the veteran manage their PTSD than the trained tasks performed by the dog (Rodriguez et al., 2020).

A second study provided some details regarding the work done by an assistance dog for a veteran, as noted by the veteran's clinician during two sessions (Goldblatt, 2019). In one session, the clinician asked the veteran about the possibility of returning to work in the force and, while the veteran was responding, the dog began to alert to the veteran's rising anxiety. This enabled the clinician to understand that the topic was more stressful to the veteran than he had realised, and it would have taken much longer for the clinician to reach that conclusion had the dog not been present. In another session, the clinician himself began to have an anxious reaction to a story being told by the veteran, and the dog began to alert to the clinician's own stress (Goldblatt, 2019).

In both of these studies, the assistance dog appears to be performing a biofeedback-type role, letting the owner, or indeed others in the room, know that they are becoming stressed even before they realise it themselves. This is noted most clearly in Goldblatt's 2019 case report (Goldblatt, 2019), but is also evident in Rodriguez et al.'s 2020 study about tasks performed by assistance dogs (Rodriguez et al., 2020). One of the most important tasks noted in that study was the dog interrupting or alerting to anxiety in the veteran, in addition to helping calm the veteran during moments of high arousal. Creating a sense of safety for the veteran is also important, as noted by Rodriguez et al (2020).

Research gaps and future directions

The increased scientific rigour in some recent studies investigating assistance dogs for veterans with PTSD enables these results to be generalised to the wider community of veterans with PTSD. That is, it is likely that the benefits and challenges observed in the included research studies would likely extend to other veterans who are considering whether an assistance dog is right for them, provided these veterans share characteristics with the self-selected veterans included in available studies. Nonetheless, there remain gaps in the existing literature that should be addressed in future research.

First, the research is almost entirely based in North America, and overwhelmingly in the US. Just two of the studies were from another geographical area, including one based in Australia. The US, Canada, and Australia share similar cultures and often cooperate in military missions, so it is likely that many of the results observed in the US and Canadian samples would also apply to Australian veterans. Despite the many similarities, however, they are not identical, and more research specific to the Australian context is needed.

Second, some studies report attrition rates of veterans who opt not to receive an assistance dog after initially requesting one, or who return the dog to the provider after handover. However, the reasons why a veteran may change their mind about having an assistance dog are not investigated. This is typically beyond the scope of the included studies, which aimed to understand the impact of assistance dogs on the veterans' lives. Nonetheless, this is important information which would be useful for researchers, government, and industry to better understand. It would enable the creation of educational materials to help veterans decide early on whether an assistance dog is appropriate for them, so providers can focus their attention more fully on people who are genuinely able to commit to working with an assistance dog.

None of the included studies addressed how to help support veterans once their assistance dog retires or dies. This is probably because much of the research is so recent that the assistance dogs continue to work, although one study did mention that veterans were concerned about the short working life of the dog (McLaughlin & Hamilton, 2019). More attention should be paid to this experience in the future, which is likely to be very challenging, and possibly even triggering, for many veterans. However, if the assistance dog has been effective in helping the veteran manage his/her anxiety levels over time, perhaps the veteran will be able to cope with this transition. Research is needed to understand the impacts of retirement or death of the animal on the veteran.

Existing research offers very little information about support person burden, and available evidence is mixed. More research is needed to understand the impact of an assistance dog on support persons for veterans with PTSD.

Animal welfare is rarely considered in existing research into assistance dogs, and this must change. Assistance dogs are expected to offer substantial support to their veteran, so their welfare needs must be prioritised. In order to determine that a veteran is suitable to work with an assistance dog, they should be assessed as capable of looking after a dog, either alone or with the help of a support network and confirm that their environment is safe for a dog. An in-depth analysis of the animal welfare considerations inherent in PTSD assistance for veterans is beyond the scope of this review, but it should be a primary consideration for future research.

There is little quality control for assistance dog trainers or the dogs themselves, as the industry is currently largely unregulated. This could impact both animal welfare outcomes and human wellbeing. Indeed, one included study mentioned that veterans sometimes struggled with the training process and found it stressful (Yarborough et al., 2018). Developing standards for assistance animal training and placement should be a priority for government.

Conclusion of the literature review

The aim of this review was to identify and describe existing research investigating the impacts of assistance dogs for veterans with PTSD. There has been a substantial increase in the number of studies published in this area in recent years, and many studies are as well-designed as possible given the challenges associated with working in this field. The studies reviewed suggest that there are substantial benefits of assistance dogs for veterans, including reductions in PTSD symptoms, but not below the clinical threshold for PTSD. Impacts on caregivers are less clear due to limited evidence. Challenges of assistance dog ownership include long waits to acquire the dog, high costs associated with their acquisition and maintenance, and difficulty accessing public places. Taken together, the evidence suggests that assistance dogs can be helpful in supporting veterans with PTSD, but gaps in the literature remain on specific issues, such as reason for program attrition, support person burden, the transition process when an animal retires, animal welfare, and insufficient evidence from Australia.

Trial implementation

Information in the following sections provides the findings of the evaluation relating to the overall duration of the Trial.

Trial Recruitment and Training

The Trial utilised a discreet assistance dog training model unique to the training provider. This model is designed to provide the veteran continuous training and guidance throughout the duration of the Trial and on an as-needed basis post-Trial. The model developed by the training provider is unique in its nature as it provides regular weekly training and support of both veteran and dog as opposed to the more traditional dog training and handover models. The recruitment and training phases are described below.

Recruitment

Initial referrals to the Trial were slow although there was a perceived high level of interest in the Trial. The initial recruitment intake was limited to referrals from Open Arms. The first six veterans were accepted across four- to six-months of recruitment with a 50% referral success rate (i.e., referrals which were accepted into the Trial; this included referrals deemed to not meet the Trial's criteria and veterans who elected not to proceed after receiving further information about the Trial).

Project timeframes required an increase in the speed of referrals to ensure timeframes were achievable and aligned with the birth of new puppies. Using the existing eligibility criteria a change of approach to recruitment was applied for subsequent participants due to the initial low number of referrals. Subsequent recruitment adopted a rolling intake approach rather than discrete intake timeframes.

The changed approach broadened intake to include clinicians from outside of Open Arms, whilst also continuing to accept referrals from Open Arms' clinicians. A number of veterans also independently contacted LTU to self-refer after hearing about the Trial via DVA's existing information and news channels to veterans. This process involved LTU providing relevant information about the Trial to contacting veterans and undertaking subsequent communication with the veteran's treating clinician in relation to determining suitability for the Trial.

The adapted approach resulted in a sizeable increase of potential veterans referred to or enquiring about the Trial; however, it was also noted that there was a lower proportion of suitable applicants for the Trial (approximately 30% success rate) as compared to those referred directly via Open Arms (likely due to better awareness of eligibility requirements by clinicians prior to enquiries being made).

Table 2 summarises the referrals from each source and resulting numbers accepted to the Trial.

Table 2: Referrals and their sources

| Referral source | Total referrals | Total accepted to the Trial |
|--|---|-----------------------------|
| Open Arms clinician | 18 referrals | 11* |
| Self-initiated direct contact by veteran (including by support persons) to LTU | 29 initiated enquiries, with 23 clinician referrals subsequently received | 10 |

* One of these veterans was accepted to the Trial however withdrew prior to commencing the training program. The reason provided for their withdrawal was that they felt that they did not require an assistance dog to assist with their PTSD and that they would prefer to allow another veteran to have access to the Trial.

Training model

The following information regarding the CSTDA training model and post-delivery support structure has been drawn from written information provided by LTU, who was overseeing the implementation of the Trial.

Working with assistance dogs

Once a veteran was accepted into the Trial, they began a training course with a therapy dog and provider staff. During the training course, the provider worked one-on-one with each veteran participant and their support person.

The provider, in conjunction with the veteran participant and support person, created a list of goals to be attained through the help of the assistance dog. These goals were reviewed on a regular basis and were used to design and structure a specific dog training program which was implemented for the individual veteran's assistance dog and informed the training program for the veteran participant.

This training process was designed to be empowering for the veteran and involved them working with the assistance dog to engage in activities that they might otherwise be unable to do (e.g., interact positively with strangers, walk around the block, and sit at a table in a restaurant). Veteran and support team members were taught about basic dog management, such as how much to feed, how to use the lead, and when to take the dog to the vet. This process involved the use of one of the provider's experienced therapy dogs during training sessions. Veteran participants also learnt how to use the therapy dog for each of the tasks that their own assistance dog would ultimately perform for them.

The training program proceeded under the supervision of the provider's qualified animal interventionists and health psychologists.

Matching the veteran participant and assistance dog

Many assistance dog provider organisations breed and raise entire litters of puppies, or they source adult dogs from shelters or rescue organisations, and place the dogs with a client once they have successfully completed training. For the Trial, CSTDA typically found the client first, and then selected the dog specifically to match the needs of that particular client. For instance, a client who has a family member with a mild dog allergy may need a hypoallergenic breed like a Standard Poodle. A client with a psychiatric disability, such as PTSD, may need a dog that is bred to form a very strong bond with the owner, such as a Lagotto Romagnolo or a Labrador Retriever. CSTDA has contacts with several breeders who use ethical breeding practices, and who have consistently bred dogs with the appropriate physical characteristics and temperament for assistance work. CSTDA and LTU do not use the services of large, commercial breeders (i.e. 'puppy farms').

As part of the assistance dog program, each veteran participant is taught how to appropriately handle the dog before it is delivered to live with the veteran in their home. The bonding period, immediately after placement, is generally long and ranges from several weeks to three months depending on the veteran's cognitive abilities and geographical location. During this bonding period, CSTDA staff work intensively with the veteran to ensure a solid deep bond is established. Following this period, CSTDA continue working with the veteran for a further period averaging six months, or until such time that they feel confident that the veteran is comfortable using the assistance dog. Support is available 24/7 as needed, to assist with the transition. After this period, CSTDA continues to provide support on a monthly basis for the life of the Trial. Veterans are able to access ongoing support as needed from CSTDA once the Trial is completed.

Indicative average frequency and duration of training sessions and contact with the veteran participant during the Trial involved:

- Training with CSTDA Trainer and experienced therapy dog during first 12 months – once per week
- Training with Assistance Dog (during Bonding and Intervention phases) – two to three times per week, reducing during the Maintenance phase
- Monitoring – once per month (or more frequently if required)

Frequency and duration of training sessions and contact with the veteran participant is tailored according to their individual needs and capacity.

Ongoing assistance for participating veterans

CSTDA's model ensures ongoing assistance is made available for veteran and assistance dog teams. This includes additional training for the veteran and behavioural management for the assistance dog if required. CSTDA establishes a group communication app for each veteran with the key contributors to each individual's program included in this group. The groups typically consist of the veteran, support person, CSTDA psychologist, lead trainer and back-up trainer. This group allows the veteran and support person to have direct support to CSTDA services and monitors the progress and welfare of the dogs. These groups are designed to ensure the veteran has quick access to support and is essential for communication, access to veterinarians, caring for the dog, assimilating to household etc.

Additional training

Due to the episodic and individual nature of PTSD it could be anticipated that a veteran's functional level may fluctuate over the course of the Trial. Where a veteran participant's functional level changes in such a way that they require different types of assistance (e.g., a veteran participant who was afraid to fly on planes before, but now feels more confident and wants to visit a family member interstate), CSTDA works with the veteran's clinician and support person to determine whether the assistance dog can realistically be retrained to provide the desired extra assistance. If this is possible, CSTDA staff work with the assistance dog to train these new tasks as part of their ongoing consultations. In all such cases, CSTDA engages with the support person to implement new supports where required, to enable the assistance dog to remain with and continue assisting the veteran.

CSTDA's holistic approach to training and support of the veteran has resulted in targeted additional support for a number of veterans since the dog has transitioned into the veterans' home. Specific examples of the tailoring of CSTDA's training has been present throughout the Trial where additional support for the veteran and veteran's family has been required.

Behavioural management for assistance dog

CSTDA staff work closely with the veteran participant during the first few months after the assistance dog has moved into their home, and then on an average monthly basis until the end of the Trial. During these regular interactions, the veteran has the opportunity to discuss any behavioural issues that have arisen with the assistance dog, and CSTDA staff endeavour to resolve these issues. If the bonding period has passed, the problem is unable to be resolved, and it is negatively impacting the assistance dog's ability to assist the veteran as trained, the assistance dog would be replaced.

During the Trial, two dogs were required to be replaced for differing reasons. The first dog was removed from the veteran's home due to a minor biting incident involving a young child. Although this incident was described as a 'minor incident' and related to extenuating environmental pressure on the dog, the veteran and family made the difficult decision to replace the dog with an alternate dog. This change was managed with the support and guidance of the veteran's clinician and increased support from CSTDA training staff.

A second dog was required to be removed from a different veteran due to inappropriate child-initiated treatment of the dog by the veteran's child. This situation was also managed in conjunction with the veteran's clinician and CSTDA staff, with a greater focus placed on integrating the children into the veteran's training program to educate and engage the children to reduce jealousy and ensure a safe environment for the dog.

Additional support and training have been provided to veterans in the Trial for a range of minor behavioural issues including barking, toileting and household interactions.

COVID-19

On 30 January 2020, the WHO declared COVID-19 a global Public Health Emergency. Australia recorded its first case on 25 January 2020, less than a month after the early cases were reported in China.

Multiple research studies have been undertaken in relation to the impacts that COVID-19 lockdowns and restrictions have had on the general population. A study which examined the changes in the mental health of Australians aged 15 years and older during the pandemic found that the COVID-19 lockdowns were associated with a modest negative change in overall population mental health (Butterworth, P., Schurer, S. Trinh, T., Vera-Toscano, E. & Wooden, M., 2022). The findings included a small but statistically significant effect of lockdown on mental health, with greater decline for residents of Victoria in 2020 than for those in the rest of Australia.

Researchers undertook a meta-analysis of all of the studies on mental health conducted during the first year of the pandemic (33 published papers) which examined the association between government-imposed social restrictions and mental health outcomes (Knox, L., Karantzas, G., Romano, D., Feeney, J. & Simpson, J., 2022). The report indicates that COVID-19 social restrictions were significantly associated with increased mental health symptoms overall, including depression, stress and loneliness, but not anxiety. The strictness and length of restrictions was also found to have divergent effects on mental health outcomes (Knox et al., 2022).

Similarly, the Australian Institute of Health and Welfare (AIHW, 2022), reported on the impacts of widespread restrictions of movement, social distancing measures, physical isolation and lockdowns implemented from March 2020. They note that the sudden loss of employment and social interaction, with added stressors of moving to remote work or schooling, and impacts of sudden, localised lockdowns to prevent further outbreaks were found to have negatively impacted the mental health of many Australians.

Throughout 2020 and 2021, there was a rise in the use of mental health services and an increase in psychological distress, however, this was not associated with a rise in suspected deaths by suicide (AIHW, 2022). According to the statistics presented by the AIHW, crisis support services available to support adult Australians experiencing mental health issues reported increased demand for their services in March 2020 and following this, fluctuations in activity during the pandemic.

Of particular relevance to this Trial is the impact of COVID-19 in Victoria and the events that followed during the period of March 2020 to the end of the Trial in June 2022. Victoria's response to the pandemic involved six lockdown periods totalling 267 days (Boaz, 2021) with restrictions imposed in Melbourne (and regional areas when required) during these periods. In addition, where veterans had moved interstate during the Trial, border closures prevented the training provider from providing in-person training at times, resulting in longer periods in between training sessions (however, phone support continued to be available during these times).

Impacts of COVID-19 on the Trial

As a result of the uncertainty surrounding the greater impact of COVID-19 on the wider community,

1. Early handover of dogs to six veterans recruited in the first intake; and
2. When mandatory lock-down measures were introduced, ensuring the training provider obtained state-government approved 'Essential Service' status to be able to continue to deliver services within COVID-19 restrictions.

Early delivery of assistance dogs

At the time of the government implementing COVID-19 related restrictions, veterans who had been recruited in the initial intake (n=6) were all nearing the end of the initial training phase and were estimated to be two- to four-weeks from having their assistance dog handed over to live with them in their home. It was determined by the training provider that all veteran participants and their dogs were very well prepared to progress to the next phase of training. A risk assessment was conducted by LTU and the training provider which determined that the slightly early handovers should occur. Documentation provided by LTU indicated that key considerations to the early assistance dog handover included:

1. The veteran participants had been engaging in the comprehensive training program for nearly one year, training them on how to effectively handle an assistance dog, and they were considered to be well prepared to bring a dog into their home.
2. According to a recent study (Brooks et al., 2020), the psychological implications of a quarantine period include post-traumatic stress, as well as long-term anxiety and anger in people with pre-existing conditions. The study indicated that people with poor mental health would likely need additional support during a quarantine period, and that having companionship and connection with others could help mitigate negative long-term impacts. Therefore, it was considered that for veteran participants to have their assistance dog in situ, this may provide stress relief and a new point of interest and activity that would benefit them during a period of COVID-19 lock-down.
3. In order to ensure that the veteran participants were ready to receive their assistance dog, the training provider liaised with their treating clinician to confirm that they supported the slightly early handover.

The risk assessment determined that the main risks inherent in delaying the handover of the assistance dogs included:

1. The assistance dogs may be compromised, depending on the length of the delay. If a critical bonding period was missed, the assistance dog may be unable to perform her job long-term due to lack of bonding with the veteran. If the delay was short (e.g., less than three months) then the dogs could, in most cases, be re-trained and placed with the veteran; however, if the delay was longer (e.g., longer than three months), it may not be possible to place the assistance dog with the veteran and it would then need to be repurposed. In that event, a new assistance dog would need to be trained for the veteran, further delaying placement by up to one year.
2. The veterans' mental health may be compromised if they were unable to receive their dog for many months beyond the expected handover. Anecdotally, the veterans had been excited about receiving their assistance dog and it was considered that delaying placement could do more psychological harm than placing them early. Furthermore, LTU referenced an additional study (Song et al., n.d.) which indicated that there is a strong, established relationship between stress and immune function. It was considered that a veteran participant with PTSD (and often other physical health issues) may be at high risk of becoming seriously ill if they were to contract COVID-19 and experience associated complications. This was further highlighted when considering the age of some veteran participants being 65-years or older, an identified higher-risk group for COVID-19.
3. The assistance dog foster families may have relinquished some dogs if they were asked to keep them for substantially longer than they had anticipated. If a new foster family was required, this would require relocating the dog, which is known to be confronting for the dog

when this occurs. Taking into account that the assistance dog would have to be again relocated to the veteran at the point of handover, this would place the dog at risk of becoming less secure, unstable and as a result, unsuitable for purpose.

Handover Management

LTU and the training provider developed the following COVID-19 handover procedure, for the first veteran intake, in conjunction with the evaluation team to ensure that both the veteran participant and the Trial had the best chance of success within this period. The protocols adhered to included:

1. Each veteran's treating clinician was contacted by the training provider's Health Psychologist, to determine whether they supported an early handover for their veteran client. Support provided by the treating clinician was to continue as per their normal treatment approach.
2. The training provider contacted the veteran about the possibility of an early handover. The veteran was provided the option of an early handover or a delayed one.
3. Evolution Research was notified of the handover date to coordinate and conduct the pre-handover interview for the purpose of the evaluation of the Trial.
4. The training provider conducted handover of the assistance dog to each veteran participant and then implemented their support and continued training processes.

Subsequent training and handover

With the granting of essential service status by the Victorian state-government, the training provider continued to work with their veteran participants and ensured their program remained on target. They made adjustments to the training delivery mode and frequency, where required, to ensure that COVID-19 guidelines were adhered to and that the safety of staff and the veteran and their families were not placed at risk.

Evaluation methodology

The evaluation methodology was designed to investigate the outcomes of Trial-related activities as they relate to veteran and support person participants, as delivered by LTU and the training provider, in consultation with treating clinicians and under the auspices of DVA. The evaluation incorporates feedback from a range of sources, including participants, stakeholders and assistance dog assessment, the findings of which were analysed and considered in relation to the evaluation and Trial objectives.

Figure 2 provides an overarching view of the evaluation structure as it relates to the Trial.

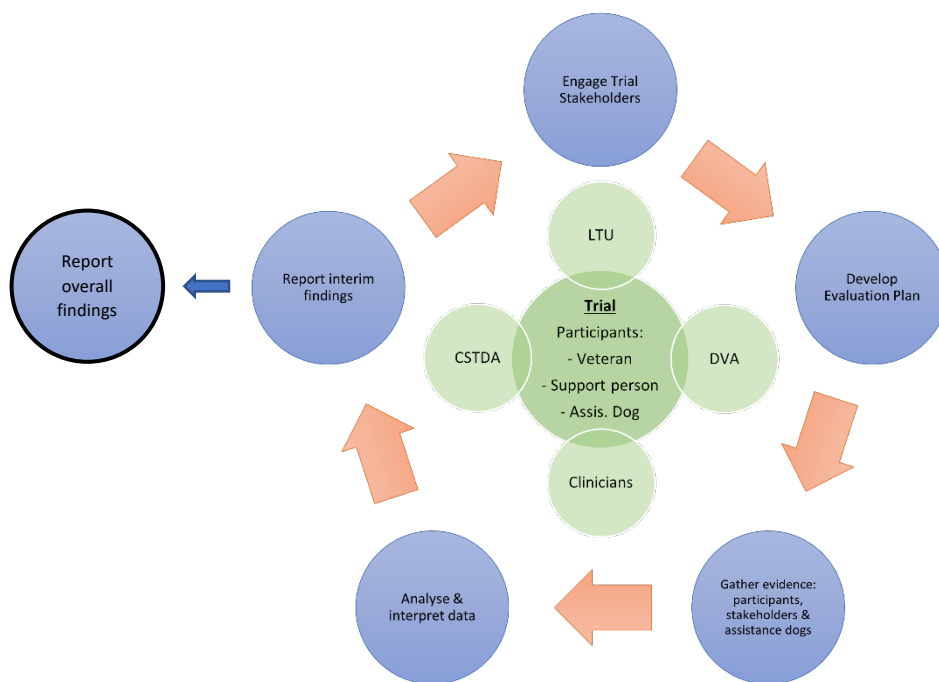


Figure 2: Evaluation Framework

The Evaluation Program Logic shown in Figure 3 provides a graphical overview of the evaluation processes and methodology.

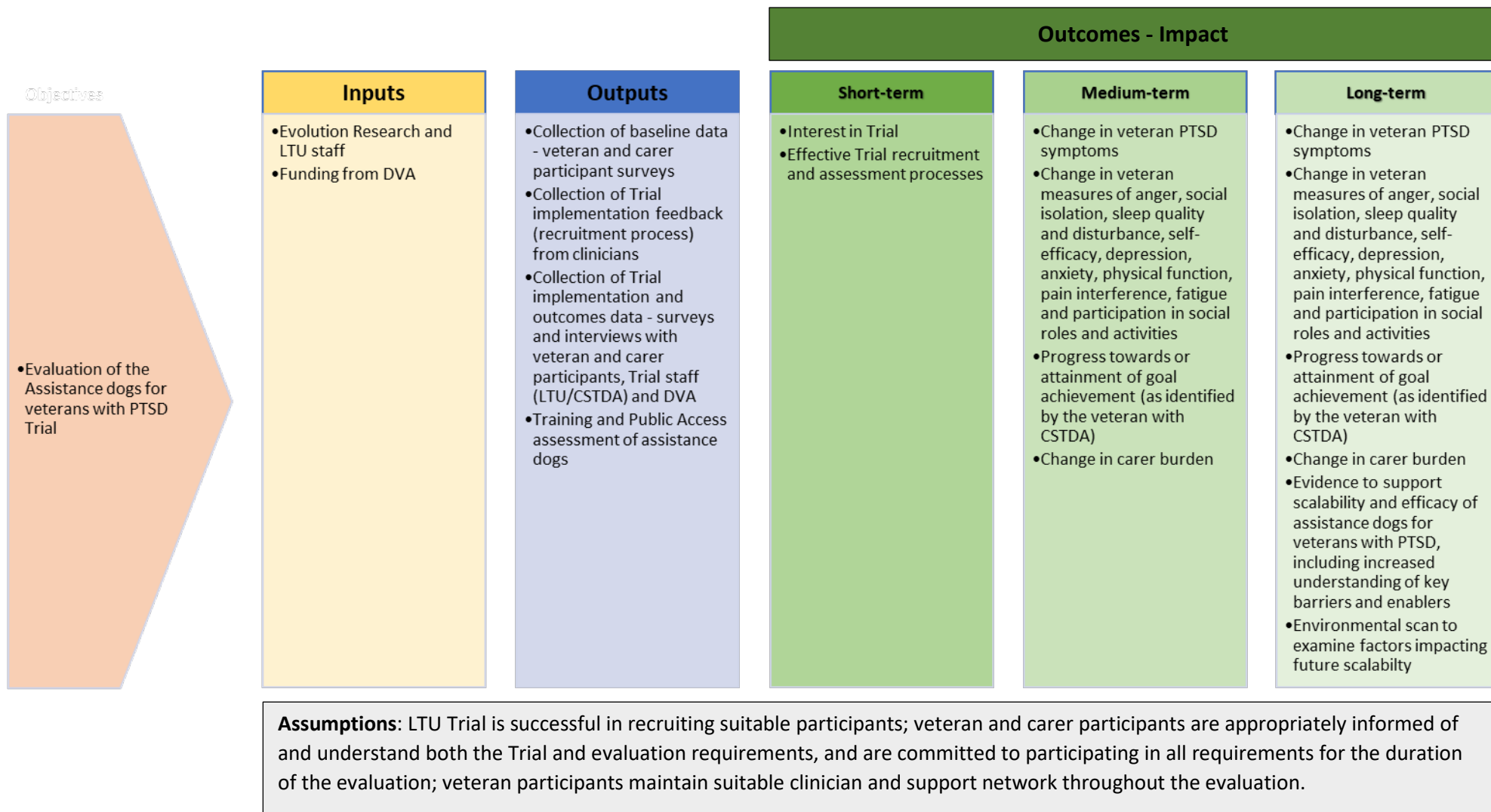


Figure 3: Evaluation Program Logic

Process

Underpinning processes which have assisted in ensuring all ethical considerations are applied and maintained throughout the evaluation have included:

- Ethics approval – a proposal was submitted to the Departments of Defence and Veterans' Affairs Human Research Ethics Committee (DDVA HREC). The Committee deemed the proposal to be an evaluation which did not fall under the requirements for ongoing monitoring by the DDVA HREC. Since this time, monitoring of the evaluation has been performed through regular and ongoing evaluation oversight by the DVA Assistant Director, Mental and Social Health Programs Section.
- Informed consent – this process involved each veteran participant's treating clinician in the first instance to allow consideration of involvement in the Trial before being identified to the Trial or evaluation team. Each veteran and stakeholder participant were provided with an evaluation 'Participant Information Sheet (PIS) and Consent Form' to inform them of all elements of the evaluation.
- Security of participant information - all recorded data was identifiable by only an individual code assigned to each participant on commencement in the Trial. Each participant used the same code throughout the project. Assigned codes and corresponding participant name were stored in an individual file in case follow-up was required with a specific participant; however, this document has been stored separately to any data. This assisted in protecting confidentiality and anonymity of data utilised in the evaluation of the Trial.

Methods

The rationale for chosen evaluation methods was underpinned by the overarching aims of the evaluation, to advance the understanding of whether assistance dogs provide benefits to veterans with PTSD or reduce carer burden on members of their support team.

Identification of informants

To meet the specific evaluation objectives, selection of participants was necessarily limited to veterans, their support persons and stakeholders participating in the Trial. The number of veteran participants (20) to be consulted in the evaluation was therefore limited by the maximum number of veteran participants (20) recruited to participate in the Trial.

Other relevant stakeholders who have been consulted in the evaluation are identified in Table 3.

Table 3: Stakeholders consulted during evaluation

| Stakeholder | Nature of involvement and consultation |
|---|---|
| DVA | As the funder of the project, DVA Program Managers have provided feedback in relation to the implementation of the Trial and feedback provided by any relevant associates. |
| LTU | <p>As the contractual holder for the design, recruitment and implementation of the Trial, LTU has been consulted in relation to evaluation of the recruitment, selection and overall management of the Trial. LTU’s program managers continue to be engaged to inform on all aspects of the program throughout the life of the Trial. Through their role as having primary responsibility for managing the implementation of the Trial, information has been regularly reported by LTU in relation to selection of the veterans and the assistance dogs; training and transitioning of assistance dogs to veterans; and impact on the veteran and carers. This iterative process has facilitated continual improvement of the Trial.</p> <p>LTU provided assistance to Evolution Research in relation to some initial data collection-related activities, including: gaining informed consent from participants to participate in the evaluation of the Trial; provision of recruitment data (e.g., date of veteran onboarding to the Trial; contact details for the veteran’s treating clinician; and information relating to CSTDA staff involved with each participant).</p> |
| CSTDA | CSTDA has been contracted by LTU to provide the assistance dog training and ongoing support to veteran participants in the handling and integration of the assistance dog into their life for the duration of the project and beyond. CSTDA has been engaged throughout the evaluation to provide ongoing feedback in relation to the training, bonding and transitioning of assistance dogs into the care of each veteran; and also in relation to goal setting and achievement of individual participants. This information has been provided by CSTDA’s Health Psychologist and Senior Occupational Therapist who held primary responsibility for coordinating and overseeing the CSTDA program for the Trial. |
| Clinicians <ul style="list-style-type: none"> • <i>Open Arms</i> • <i>Other clinicians</i> | In line with LTU Trial processes, clinicians initially included those from Open Arms, and were subsequently expanded to include clinicians from other services treating veterans with PTSD (including private clinicians). Clinicians have been given the opportunity to provide feedback relating to the Trial’s recruitment processes, Trial outcomes and positive or negative impacts of the Trial; however, this has been optional. |

Data collection

A mixed methods approach was utilised in the design of this study. The use of validated surveys facilitated measurable and less subjective conclusions to be drawn regarding outcomes experienced by veteran and support person participants. The use of qualitative interviews was included to enable richer data to be gained to supplement survey findings and to provide information relating to the implementation of the program itself and key considerations relating to future scalability of the model used in the Trial. The use of established and validated measures of PTSD symptomology, quality of life, general health and carer burden, were implemented to assist in overcoming potential limitations of an over reliance on subjective measures.

Surveys have been used to collect both quantitative and qualitative information from participants. The tools and methods used are indicated in Table 4. The data collection periods for veteran and support person participants has included completion of baseline survey measures within two weeks of acceptance into the Trial, and then an average of every four months for the duration of the Trial.

Interviews with veteran participants and support person participants were conducted within two to four weeks prior to a veteran receiving delivery of their assistance dog, on average approximately 10-12 months into the CSTDA training program. These interviews were designed to be conducted face-to-face where possible (unless indicated otherwise by the participant), however this approach was adapted to fit with COVID-19 restrictions, with participants offered the choice of phone or video-conference where required. Further interviews were conducted with participants 9-12 months following delivery of the assistance dog.

In addition to the planned interview schedule, additional informal interviews were conducted by phone with veteran participants (and support persons where agreed) approximately 12-months after the initial COVID-19 restrictions were implemented. This additional interview enabled the evaluation team to informally monitor the progress of the veteran and dog and provide opportunity for the veteran or support person to alert the evaluation team to any concerns or challenges.

Collection of feedback from stakeholders was provided through fortnightly update meetings between DVA, LTU, CSTDA and Evolution Research and written monthly reports provided by CSTDA.

Data collection points were structured to enable examination of changes from pre- to post-Trial, including changes that occurred during the program. The frequency of data collection was designed to minimise data collection burden on participants whilst also providing sufficient information on which to evaluate program-related changes.

Risk management

Potential risks and associated risk management strategies were considered during development of the evaluation framework and methodology. Ongoing risks pertaining to specific events throughout the life of the evaluation were documented and reviewed on a regular basis to ensure effective management and avoidance of adverse impacts on participants or on the evaluation. There were no significant adverse impacts on the evaluation.

Independent assessment of assistance dogs

Independent assessment of a sample of 10 of the trained assistance dogs was undertaken, following an appropriate bonding period between veteran participants and their dog. This assessment was designed to provide independent verification that the welfare and training of the dogs had been delivered and maintained in line with Assistance Dogs International standards and the aims of the Trial, to add to the robustness of findings as they relate to the training approach.

Table 4: Data collection tools and methods

| Veteran participant | Carer participant | Clinicians |
|---|---|---|
| <p>Quantitative:</p> <ul style="list-style-type: none"> • Background and demographic information survey - veterans • PTSD Checklist for DSM-5 (PCL-5) • PROMIS measures: <ul style="list-style-type: none"> ○ PROMIS-29 Profile v2.1 – includes: <ul style="list-style-type: none"> - PROMIS Item Bank v2.0 – Physical Function – Short Form 4a - PROMIS Item Bank v1.0-Emotional Distress-Anxiety – Short Form 4a - PROMIS Item Bank v1.0 – Emotional Distress-Depression – Short Form 4a - PROMIS® Item Bank v1.0 –Fatigue – Short Form 4a - PROMIS Item Bank v1.0 –Sleep Disturbance – Short Form 4a - PROMIS® Item Bank v2.0 - Ability to Participate in Social Roles and Activities- Short Form 4a - PROMIS® Item Bank v1.1 – Pain Interference – Short Form 4a ○ PROMIS Item Bank v1.1 – Emotional Distress-Anger – Short Form 5a ○ PROMIS Item Bank v2.0 – Social Isolation – Short Form 6a • Pittsburgh Sleep Quality Index (PSQI) • General Self-Efficacy Scale (GSE) • Schuster Social Support Scale <p>Qualitative:</p> <ul style="list-style-type: none"> • Interviews [face-to-face (in person or online) or phone], using interview discussion guide tailored to each individual and the relevant stage of the Trial | <p>Quantitative:</p> <ul style="list-style-type: none"> • Background and demographic information survey – carers • Caregiver’s Burden Scale • Schuster Social Support Scale <p>Qualitative:</p> <ul style="list-style-type: none"> • Interviews [face-to-face (in person or online) or phone], using interview discussion guide tailored to each individual and the relevant stage of the Trial | <ul style="list-style-type: none"> • Trial screening, recruitment and completion survey, including quantitative and open-text response options |

Findings

Information in this section presents the data and findings resulting from survey completion and interviews. These findings, in relation to the evaluation objectives and key questions, are presented in the Discussion section of this report.

Baseline data

All veteran and support person participants completed a survey at the point of acceptance into the Trial – this included 20 veteran participants and their 20 support persons. This survey consisted of questions which were only asked at one point during the Trial, gathering background and demographic information; and surveys which were subsequently administered at four-monthly intervals throughout the Trial to examine changes in key measures.

Demographic and background information – veteran participants

Twenty veteran participants commenced in the Trial, with three withdrawing prior to the end. 17 veteran participants therefore remained in the Trial and evaluation to its conclusion.

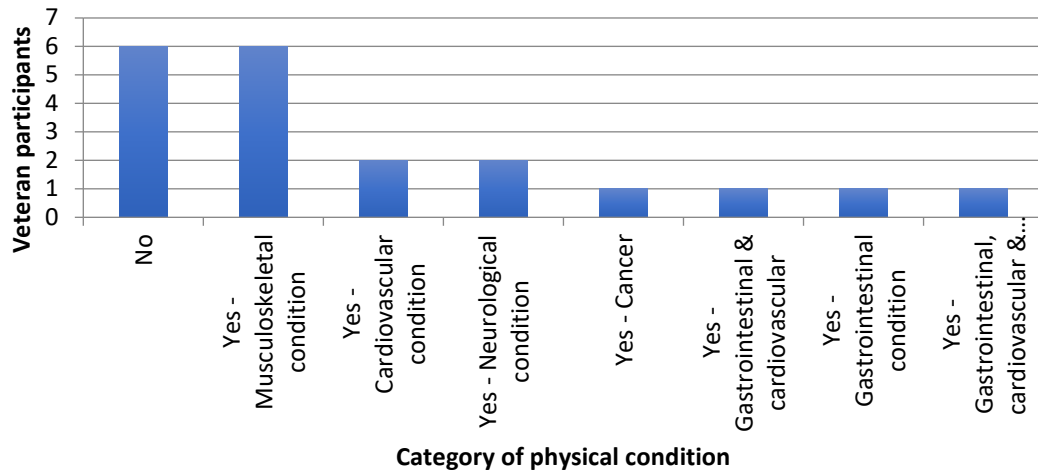
Table 5 provides a summary of consolidated demographic information relating to veteran participants at the point of commencement of the Trial.

Table 5: Veteran participant demographic information on commencement in Trial

| | | |
|-------------------------|---|-----------|
| Age (years) | Average | 54 |
| | Youngest | 33 |
| | Oldest | 74 |
| | Notes: <ul style="list-style-type: none"> ▪ Twelve were aged between 33 and 54 ▪ Eight were aged between 65 and 74 | |
| Gender | Male | 19 |
| | Female | 1 |
| | Non-binary | 0 |
| Relationship status | Married/long-term living together | 16 |
| | Long-term but not living together | 1 |
| | New/recent relationship | 1 |
| | Single | 2 |
| Living arrangements | Live with other adults in the household | 16 |
| | Live alone | 4 |
| | Notes: <ul style="list-style-type: none"> ▪ Of those living with other adults, the majority live with a spouse ▪ Seven veteran participants have children aged under 18 years living full-time at home and three have children under 18 years living part-time at home | |
| Pets in the household | Yes | 11 |
| | No | 9 |
| Physical illness/injury | Currently receiving treatment/medication for a physical condition | 14 |
| | Not currently receiving treatment/medication for a physical condition | 6 |
| | Comments: Identified categories of physical conditions requiring treatment are shown in Figure 4. | |
| Service | Navy | 5 |
| | Army | 15 |
| Length of service | Average | 9.2 years |
| | Shortest | 20 days |
| | Longest | 27 years |
| Deployed overseas | Yes | 14 |
| | No | 6 |
| | Comments: Overseas deployment included: <ul style="list-style-type: none"> ▪ Eight veterans with single deployment ▪ Six veterans with multiple deployments | |

As indicated in Table 5, 14 veteran participants were receiving treatment and/or medication for physical conditions at the point of commencing in the Trial. The range of conditions is identified in Figure 4.

Figure 4: Physical conditions receiving treatment/medication at commencement of Trial



One of the key criteria required for acceptance to the Trial included that veteran participants have a formal diagnosis of PTSD. Each veteran participant completed the PCL-5 on commencement of the Trial, with results confirming that this acceptance criterion had been met. Table 6 summarises the spread of PCL-5 scores. In interpreting the PCL-5 it is noted that a score of 31-33 or higher indicates that the participant may benefit from further PTSD treatment and a score lower than 31-33 that they either have subthreshold symptoms of PTSD or do not meet the criteria for PTSD.

Table 6: Veteran participant PCL-5 score at Trial commencement

| PCL-5 score | Number of participants |
|---------------|------------------------|
| Between 0-33 | 0 |
| Between 34-60 | 17 |
| Between 61-80 | 3 |

Figure 5 shows the distribution of PCL-5 score for veteran participants on commencement of the Trial, with the cut-off score for formal diagnosis and average PCL-5 score also indicated.

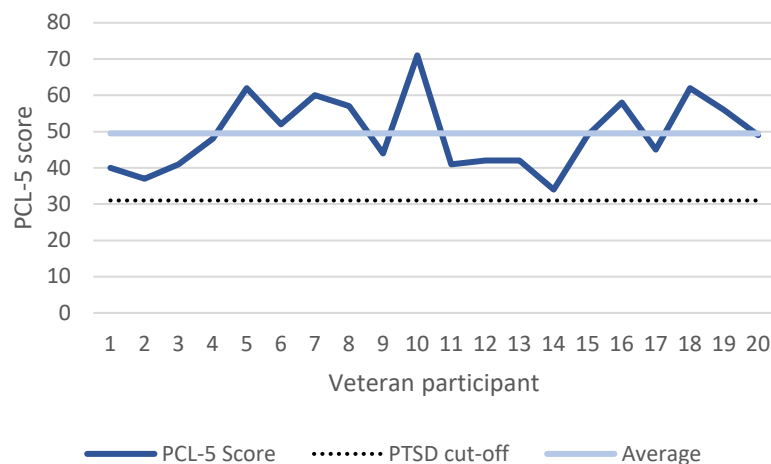


Figure 5: PCL-5 score on commencement of Trial

The charts shown in Figure 6 to Figure 8 indicate the self-reported impacts of the 20 DSM-5 symptoms of PTSD at commencement of the Trial. These have been grouped in descending order of ratings of most to least concern, according to how much a veteran participant “felt bothered by” the symptom in the previous month:

- ‘Quite a bit’ or ‘Extremely’
- ‘Moderately’
- ‘Not at all’ or ‘A little bit’

Figure 6 indicates the symptoms of most concern to veteran participants, with a rating of ‘Quite a bit’ or ‘Extremely’ being chosen by the participant in relation to how much they had been bothered by the symptom in the previous month. The key symptoms which were found to represent more than 60 per cent of all veteran responses for those of most concern included:

- Feeling distant or cut off from other people (n=16)
- Being “super alert” or watchful or on guard (n=13)
- Trouble falling or staying asleep (n=13)
- Having strong negative beliefs about yourself, other people, or the world (n=13)
- Blaming yourself or someone else for the stressful experience or what happened after it (n=13)
- Avoiding external reminders of the stressful experience (n=13)
- Having strong negative feelings such as fear, horror, anger, guilt, or shame (n=12)
- Avoiding memories, thoughts, or feelings related to the stressful experience (n=12)
- Having difficulty concentrating (n=12)
- Feeling jumpy or easily startled (n=11)
- Trouble experiencing positive feelings (n=11)
- Loss of interest in activities that you used to enjoy (n=11)

The symptoms which were found to represent the remaining 40 per cent of all veteran responses for those of most concern included:

- Feeling very upset when something reminded you of the stressful experience (n=10)
- Having strong physical reactions when something reminded you of the stressful experience (n=10)
- Irritable behaviour, angry outbursts, or acting aggressively (n=10)
- Trouble remembering important parts of the stressful experience (n=10)
- Repeated, disturbing, and unwanted memories of the stressful experience (n=9)
- Repeated, disturbing dreams of the stressful experience (n=9)
- Taking too many risks or doing things that could cause you harm (n=5)
- Suddenly feeling or acting as if the stressful experience were actually happening again (n=4)

Figure 7 indicates the symptoms which were indicated to be of *moderate concern* to veteran participants, with a rating of ‘Moderately’ being chosen by the participant in relation to how much they had been bothered by the symptom in the previous month. The key symptoms which were found to represent approximately 65 per cent of all veteran responses for those of *moderate concern* included:

- Suddenly feeling or acting as if the stressful experience were actually happening again (n=8)
- Loss of interest in activities that you used to enjoy (n=8)
- Trouble experiencing positive feelings (n=8)
- Having difficulty concentrating (n=7)
- Repeated, disturbing, and unwanted memories of the stressful experience (n=6)
- Repeated, disturbing dreams of the stressful experience (n=6)

- Feeling very upset when something reminded you of the stressful experience (n=6)
- Having strong physical reactions when something reminded you of the stressful experience (n=6)
- Avoiding memories, thoughts, or feelings related to the stressful experience (n=6)
- Avoiding external reminders of the stressful experience (n=6)
- Blaming yourself or someone else for the stressful experience or what happened after it (n=6)
- Having strong negative feelings such as fear, horror, anger, guilt, or shame (n=6)
- Irritable behaviour, angry outbursts, or acting aggressively (n=6)

The symptoms which were found to represent the remaining 35 per cent of all veteran responses for those of *moderate concern* included:

- Having strong negative beliefs about yourself, other people, or the world (n=4)
- Trouble remembering important parts of the stressful experience (n=3)
- Trouble falling or staying asleep (n=3)
- Feeling distant or cut off from other people (n=2)
- Taking too many risks or doing things that could cause you harm (n=2)
- Being “super alert” or watchful or on guard (n=2)
- Feeling jumpy or easily startled (n=1)

Figure 8 indicates the symptoms of *least concern* to veteran participants, with a rating of ‘Not at all’ or ‘A little bit’ being chosen by the participant in relation to how much they had been bothered by the symptom in the previous month. The symptoms which were found to represent the *least concern* of approximately 50 per cent of all veteran responses included:

- Taking too many risks or doing things that could cause you harm (n=13)
- Suddenly feeling or acting as if the stressful experience were actually happening again (n=8)
- Feeling jumpy or easily startled (n=8)
- Trouble remembering important parts of the stressful experience (n=7)
- Repeated, disturbing, and unwanted memories of the stressful experience (n=5)
- Repeated, disturbing dreams of the stressful experience (n=5)
- Being “super alert” or watchful or on guard (n=5)

The symptoms which were found to represent the remaining 50 per cent of all veteran responses for those of *least concern* included:

- Feeling very upset when something reminded you of the stressful experience (n=4)
- Having strong physical reactions when something reminded you of the stressful experience (n=4)
- Irritable behaviour, angry outbursts, or acting aggressively (n=4)
- Trouble falling or staying asleep (n=4)
- Having strong negative beliefs about yourself, other people, or the world (n=3)
- Avoiding memories, thoughts, or feelings related to the stressful experience (n=2)
- Having strong negative feelings such as fear, horror, anger, guilt, or shame (n=2)
- Feeling distant or cut off from other people (n=2)
- Avoiding external reminders of the stressful experience (n=1)
- Blaming yourself or someone else for the stressful experience or what happened after it (n=1)
- Loss of interest in activities that you used to enjoy (n=1)
- Trouble experiencing positive feelings (n=1)
- Having difficulty concentrating (n=1)

Figure 6: Baseline self-reported impacts of PTSD symptoms – ‘Quite a bit’ or ‘Extremely’

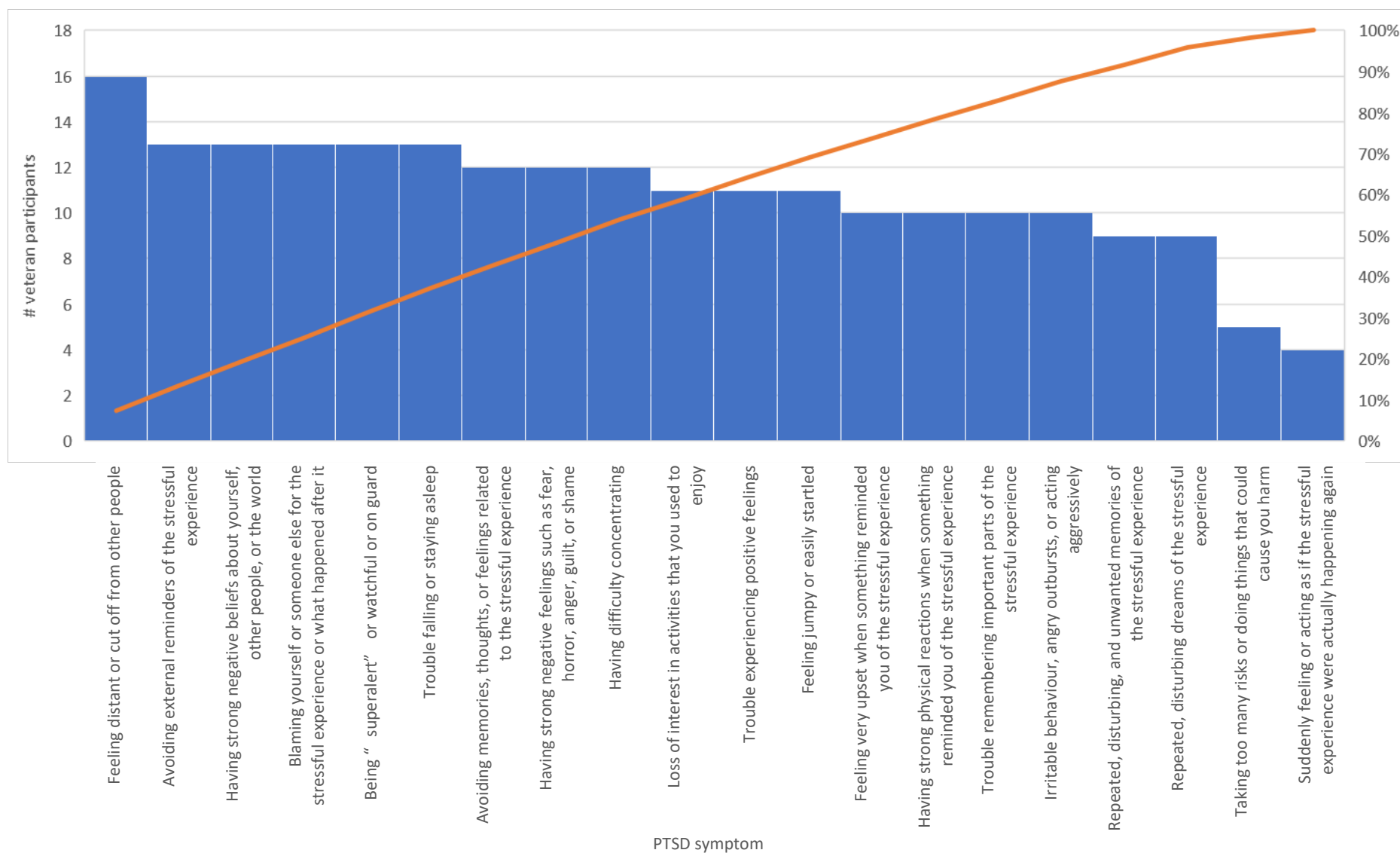


Figure 7: Baseline self-reported impacts of PTSD symptoms – ‘Moderately’

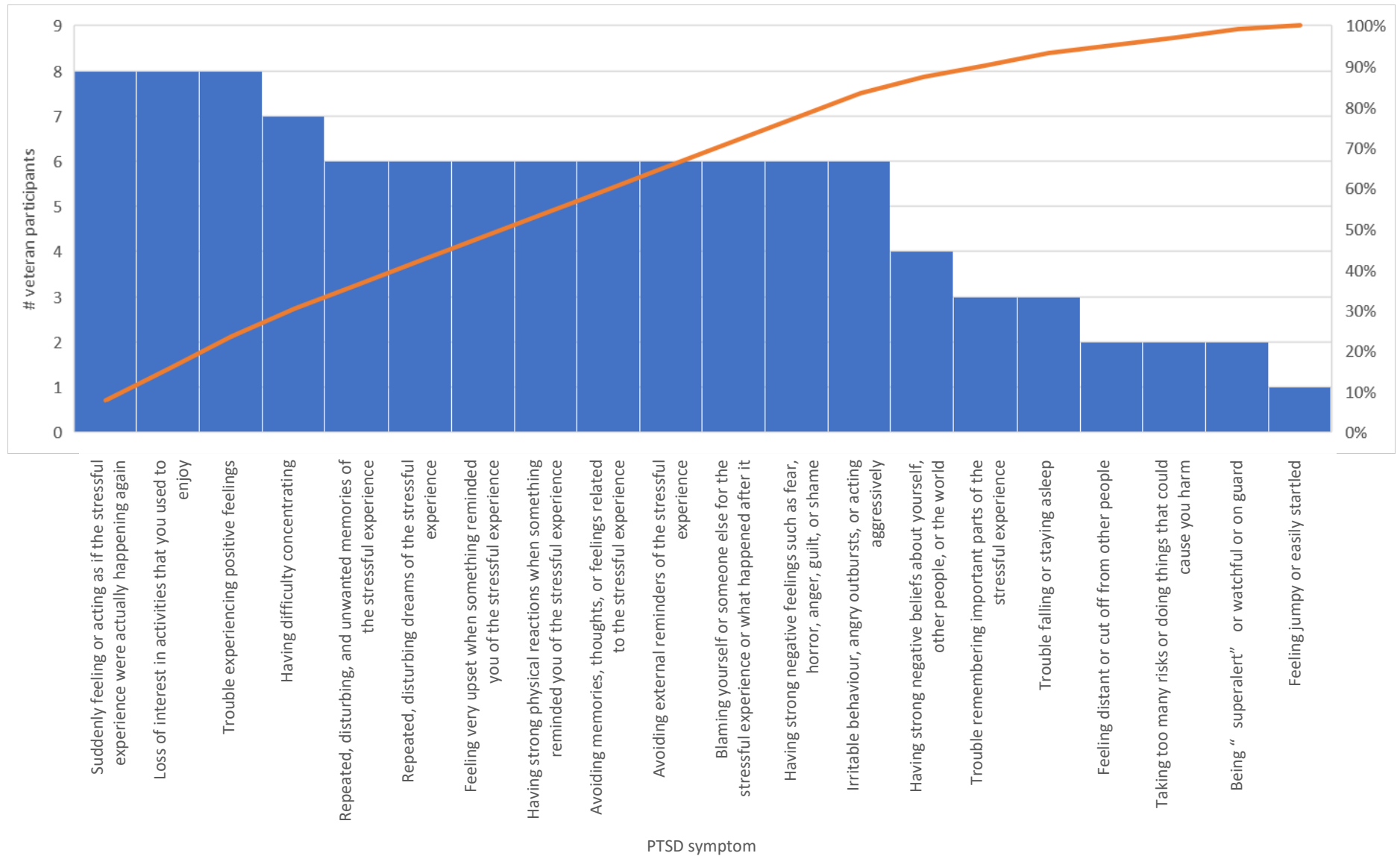
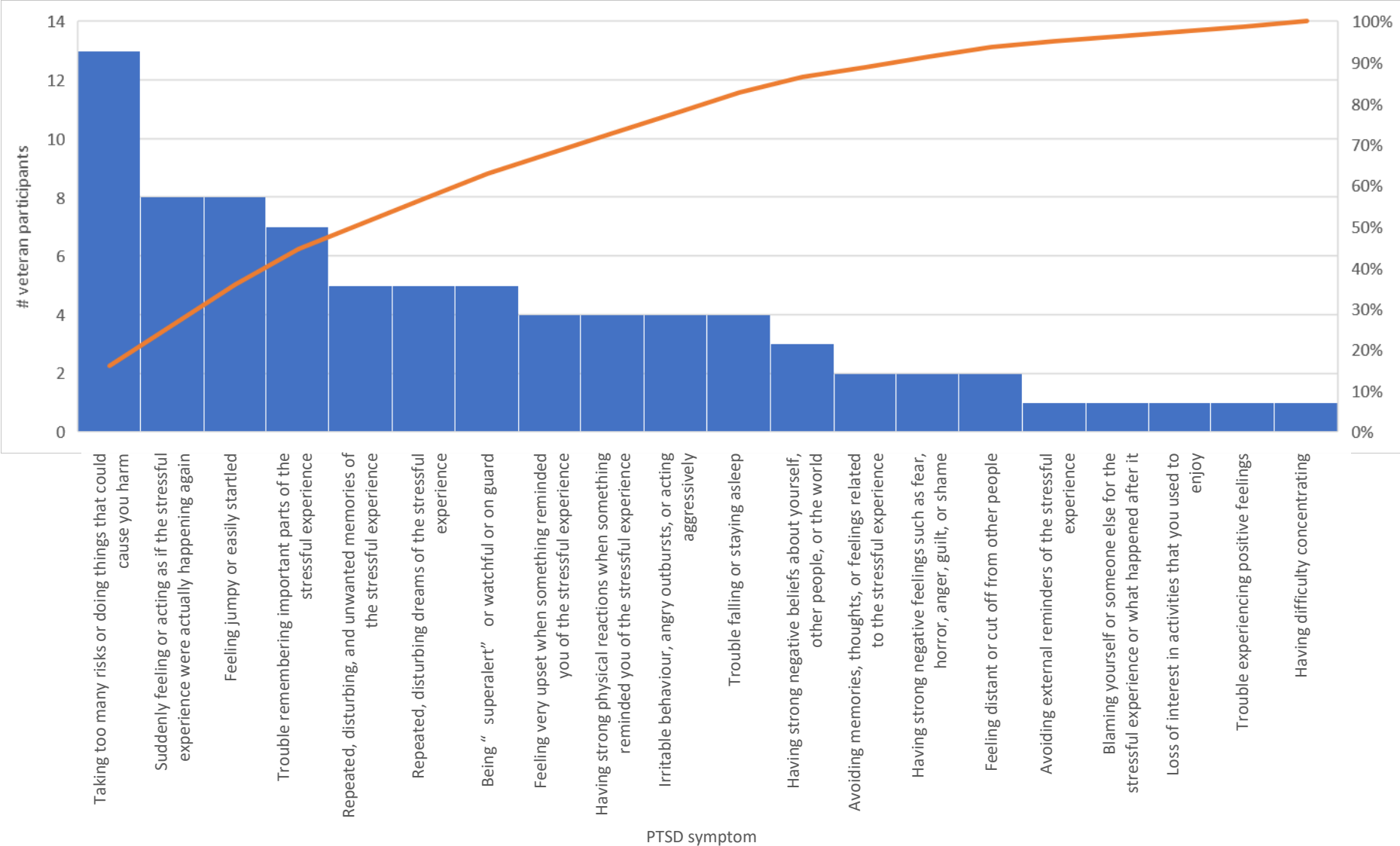


Figure 8: Baseline self-reported impacts of PTSD symptoms – ‘Not at all’ or ‘A little bit’



Background information collected from veteran participants included their reasons for participating in the Trial, their desired outcomes and any concerns they felt at commencement of the Trial. Responses provided by veterans are summarised in Table 7.

Table 7: Veteran participant reasons for Trial participation, desired outcomes and concerns (at commencement of Trial)

| | |
|--|--|
| <p>Reasons for participating in the Trial and desired outcomes:</p> | <ul style="list-style-type: none"> ▪ Companionship ▪ Reduction or better management of PTSD symptoms ▪ Improve health and sense of well-being and lessen anxiety and depression ▪ Recommended by psychologist and support person ▪ Contribute to evidence of benefits of assistance dogs in relation to veterans with PTSD; to assist future veterans ▪ Relieve burden and strain on spouse and family ▪ Regain trust in society, improve confidence and independence in public settings and activities ▪ Reduce medication ▪ Try a non-medical/non-medication solution to mental health issues ▪ Reduce loneliness ▪ Greater stability in mental health, regain some normality in life, improve ability to get out more ▪ Improve physical health |
| <p>Concerns relating to participating in the Trial</p> | <ul style="list-style-type: none"> ▪ 18 of the 20 veteran participants indicated that they did not have any concerns in relation to participating in the Trial. ▪ Of the two veterans that indicated concern, these included: <ul style="list-style-type: none"> ○ Concern the program may not work for reasons they are unaware of ○ Concern there may not be a suitable dog or that the dog may not bond with the veteran ○ Due to the long time period of the Trial, concern that training may clash with personal commitments or that illness may interfere with planned activities for the Trial ○ Given the big investment by the sponsor, concern that the veteran does not want to disappoint anyone or that older age may impact results |

Demographic and background information – support person participants

Twenty support person participants commenced in the Trial. On completion of the Trial, 16 support person participants remained in the evaluation with one support person withdrawing from the evaluation after approximately 10 months (the associated veteran participant continued in the Trial) and the remaining three withdrawing in line with veteran participant withdrawal.

Table 8 provides a summary of consolidated demographic information relating to support person participants.

Table 8: Support person participant demographic information (at Trial commencement)

| | | |
|-------------------------------|--|--|
| Age (years) | Average | 49 years |
| | Youngest | 27 years |
| | Oldest | 71 years |
| | Notes: | |
| | | <ul style="list-style-type: none"> ▪ Nine aged between 27 and 45 ▪ Six aged between 46 and 65 ▪ Five aged between 66 and 71 |
| Gender | Male | 1 |
| | Female | 19 |
| | Non-binary | 0 |
| Relationship status | Married or in a long-term relationship | 16 |
| | In a new/recent relationship (e.g., six months or less) | 1 |
| | Sibling | 1 |
| | Parent | 1 |
| | Child | 1 |
| Living arrangements | Live in the same household | 17 |
| | Live separately to the veteran | 3 |
| | <ul style="list-style-type: none"> ▪ Of those living in the same household, number where children aged under 18 years also live in that household = 7 (four include teenagers only; three include children aged 5 years or less only) | |
| Paid employment status | In paid employment | 14 |
| | Not in paid employment | 6 |
| | <ul style="list-style-type: none"> ▪ Of those in paid employment: <ul style="list-style-type: none"> ○ 12 work 30+ hours per week ○ 2 work between 20-30 hours per week | |

Background information collected from support person participants in relation to what they hoped that they and the veteran participant would achieve by participating in the Trial, and also any concerns they felt at commencement of the Trial, is summarised in Table 9.

Table 9: Support person participant desired Trial outcomes and concerns (at commencement of Trial)

| | |
|--|---|
| <p>Anticipated/desired outcomes from the veteran participating in the Trial</p> | <p><i>Mental health and related impacts:</i></p> <ul style="list-style-type: none"> ▪ Increased emotional support ▪ Improved quality of life through decrease in panic/anxiety attacks during activities ▪ Reduced anxiety ▪ Improved mood, well-being and pleasure in things ▪ Lessen need for medication ▪ Someone to motivate veteran to get out of bed and feel they are being cared for and to provide motivation overall ▪ Assist to remain grounded during daily episodes of anxiety and trauma/support mechanism during panic attacks ▪ Reduction in nightmares/night terrors <p><i>Physical health:</i></p> <ul style="list-style-type: none"> ▪ Improve physical strength and fitness through walking and other exercise <p><i>Lifestyle and social/community interactions:</i></p> <ul style="list-style-type: none"> ▪ Companionship ▪ Increased socialisation ▪ Assist to balance priorities ▪ Feeling of safety in public, resulting enjoyment of being out again or going out as a family ▪ Calmer, more well-adjusted veteran both at home and in public ▪ Increased independence in attending activities, appointments and errands ▪ Improved relationship between veteran and support person – ability to bond over process of and actual assistance dog <p><i>Other:</i></p> <ul style="list-style-type: none"> ▪ Sense of unconditional love ▪ Decrease periods of silence ▪ Provide other interest to widen focus in life ▪ Reduced need for support person to focus closely on monitoring veteran at home and while out ▪ Better concentration and ability to focus on tasks ▪ Increased independence while support person is not available/present |
| <p>Concerns about participating in the Trial</p> | <ul style="list-style-type: none"> ▪ 17 indicated no concern ▪ Of concerns indicated, these included: <ul style="list-style-type: none"> ○ Logistics relating to determining who can care for the dog when away on holidays ○ Hoping the dog would not become an obsession ○ Taking on of additional responsibilities by the veteran has become a “juggling act” (includes dog and other responsibilities) |

Statistical analysis

Survey measures were completed by both veteran and support person participants at acceptance to the Trial (Baseline measure) and throughout the Trial. Survey findings are considered at the following time points:

1. Baseline score – at the veteran’s commencement of the Trial
2. Pre-delivery of the assistance dog (average of 9-12 months following commencement of Trial)
3. Six-months post-delivery (“Post-1”)- average score during the first 6-months *post-delivery* of the assistance dog
4. Greater than six-months post-delivery (“Post-2”)- average score after the initial 6-months post-delivery of the assistance dog to conclusion of the Trial.

It is noted that three veteran participants (and their associated support persons) permanently withdrew from the Trial between 12-18 months from commencement in the Trial. Of these, two veterans withdrew prior to receiving an assistance dog and one withdrew several months after receiving but returning their assistance dog.

A repeated-measures Analysis of Variance (ANOVA) was used for each of the measures. An ANOVA is a statistical method in which the variation in a set of observations is divided into distinct components, which in this case, was used to determine whether the average scores differed significantly for individuals across time points. Where statistically significant differences were indicated, a post-hoc pairwise comparison using the Bonferroni correction was used to determine which of the time points significantly differed. The assumption of homogeneity-of-variance-of-differences was met for each of the repeated-measure ANOVA tests, indicating a reliable p-value.

Statistically significant differences across the time points throughout the Trial were indicated for the following measures:

- PTSD symptoms
- Social Isolation
- Anger
- Anxiety
- Fatigue
- Participation in social roles and activities
- Subjective sleep quality
- Sleep disturbances

Of the remaining measures considered in the evaluation, no statistically significant differences between the means across time points were found for the following:

- Veteran outcomes:
 - Emotional Distress – Depression/Sadness
 - Physical Functioning
 - Pain Interference
 - General Self-Efficacy
 - Social Support perceived by the veteran in relation to the support person and other family/friends
- Support person outcomes:
 - Social support perceived by the support person in relation to both the veteran and other family/friends
 - Carer Burden

The statistical analyses in each section are presented according to the measure being investigated, with discussion of statistically significant findings. Data relating to the statistical analyses, including post-hoc tests, is provided in Appendix C.

Given the relatively small sample size, results should be interpreted with caution – the outcomes can be considered indicative of the trends observed, however are not sufficiently robust to provide conclusive statistical statements.

COVID-19 and survey completion considerations

Given much of the duration of the Trial coincided with the emergence of and ongoing presence of COVID-19, it is considered important to be mindful of potential impacts that COVID-19 lockdowns and restrictions may have had on survey measure outcomes. While this is not something which could be controlled for, given it was an unanticipated issue at the time of Trial commencement, it is known that restrictions introduced to try to control the spread of COVID-19 have impacted people's movements, ability to engage in social activities and on their overall mental health and relationships. As indicated earlier in this report, multiple research studies have shown that COVID-19 and associated lockdowns and restrictions have had adverse effects in relation to mental health of the general population.

Statistically significant findings

PTSD symptoms

The PTSD-score, as measured by the PCL-5, was considered for all participants across the duration of the Trial. For the purposes of the current evaluation, a score of 31-33 (of a maximum 80 total symptom severity score) or higher is considered indicative that a participant may benefit from further PTSD treatment, and a score lower than 31-33 that they either have sub-threshold symptoms of PTSD or may have fallen below the PCL-5 cut-off score for a provisional PTSD diagnosis.

A repeated measures ANOVA determined that mean PCL-5 scores differed significantly across the four key periods ($F_{(3,42)}=16.334, p<.001$). A post-hoc pairwise comparison showed a statistically significant decrease in PCL-5 score between the baseline ($M=49.06$) and both post-delivery periods ($M=35.22, p=.008$; and $M=28.66, p<.001$; respectively), and the pre-delivery ($M=45.63$) and both post-delivery periods ($M=35.22, p=.017$; and $M=28.66, p<.001$; respectively).

No other statistically significant differences were found between baseline and pre-delivery periods, or between the Post-1 or Post-2 delivery periods, which suggests a reduction effect of the presence of the assistance dog on PTSD symptoms as measured using the PCL-5. However, it is noted that any contributory effect or influence of additional factors (such as therapeutic interventions) is unknown.

Evidence for the PCL-5 for DSM-IV suggests that a 5-10 point change in score represents reliable change (i.e., change not due to chance) and a 10-20 point change represents clinically significant change. When considering the change from baseline ($M=49.06$) and pre-delivery ($M=45.63$), as compared to post-delivery of the assistance dog (Post-1: $M=35.22$ and Post-2: $M=28.66$), there is a greater than 10 point change which indicates that this is not due to chance and is considered clinically significant.

Interestingly, the average PCL-5 score at the Post-2 delivery period is 28.66, which falls below the cut-off score for a provisional PTSD diagnosis, however this should not be interpreted to mean that veterans no longer met the criteria for PTSD, as more formal diagnostic tools and exploration within the therapeutic treatment setting would be required. The findings do indicate however, a statistically

significant and positive reduction in overall PTSD symptoms for veterans with an assistance dog, with potential sub-threshold symptoms of PTSD evident.

Visual comparison of the means across the key periods is presented in Figure 9.

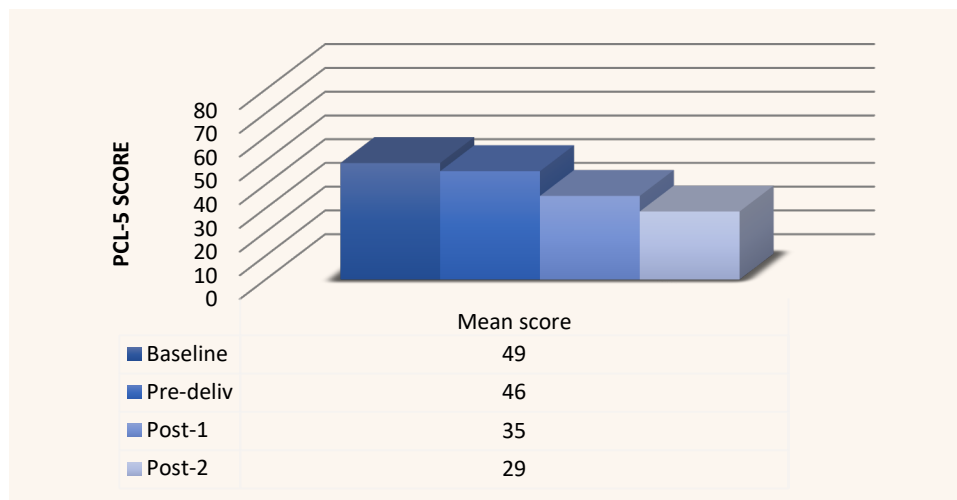


Figure 9: PCL-5 mean scores

PCL-5 subscales

The PCL-5 contains four sub-scales, relating to the DSM-5 symptom cluster severity scores: re-experiencing (maximum score=20), avoidance (maximum score=8), negative alterations in cognition and mood (maximum score=28), and hyper-arousal (maximum score=24). Each of these has been examined to determine whether statistically significant changes have occurred during the Trial.

- *Re-experiencing* - a repeated measures ANOVA determined that the mean scores for the 'Re-experiencing' sub-scale differed significantly across the four key periods ($F_{(3,45)}=15.577$, $p<.001$). A post-hoc pairwise comparison showed a statistically significant decrease in 'Re-experiencing' sub-scale score between the baseline ($M=11.13$) and two post-delivery periods ($M=8.31$, $p=.032$; and $M=6.57$, $p<.001$; respectively), and also the pre-delivery period ($M=9.94$) and the Post-2 delivery period ($M=6.57$, $p=.001$).

Therefore, this suggests that the presence of an assistance dog may contribute a reduction effect in 're-experiencing' symptoms of PTSD, with the effect increasing with duration of time that the assistance dog is present.

Visual comparison of the means across the key periods is presented in Figure 10.

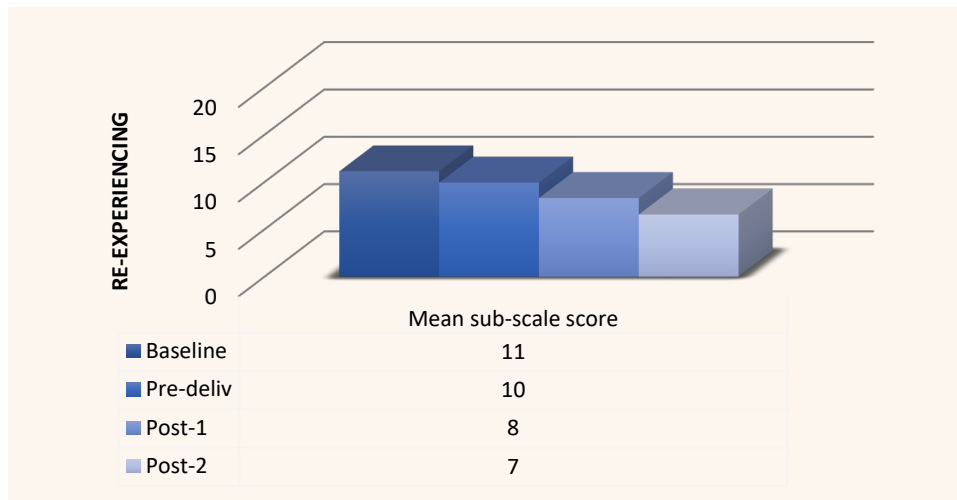


Figure 10: PCL-5 're-experiencing' sub-scale scores

- **Avoidance** - a repeated measures ANOVA determined that the mean scores for the 'Avoidance' sub-scale differed significantly across the four key periods ($F_{(3,45)}=10.422$, $p<.001$). A post-hoc pairwise comparison showed a statistically significant decrease in 'Avoidance' sub-scale score between the baseline ($M=5.44$) and two post-delivery periods ($M=3.56$, $p=.038$; and $M=3.14$, $p=.002$, respectively), and also the pre-delivery period ($M=5.00$), and both post-delivery periods ($M=3.56$, $p=.036$; and 3.14 , $p=.002$, respectively).

Therefore, similarly to 're-experiencing' this suggests that the presence of an assistance dog may contribute a reduction effect in 'avoidance' symptoms of PTSD, with the effect increasing with duration of time that the assistance dog is present.

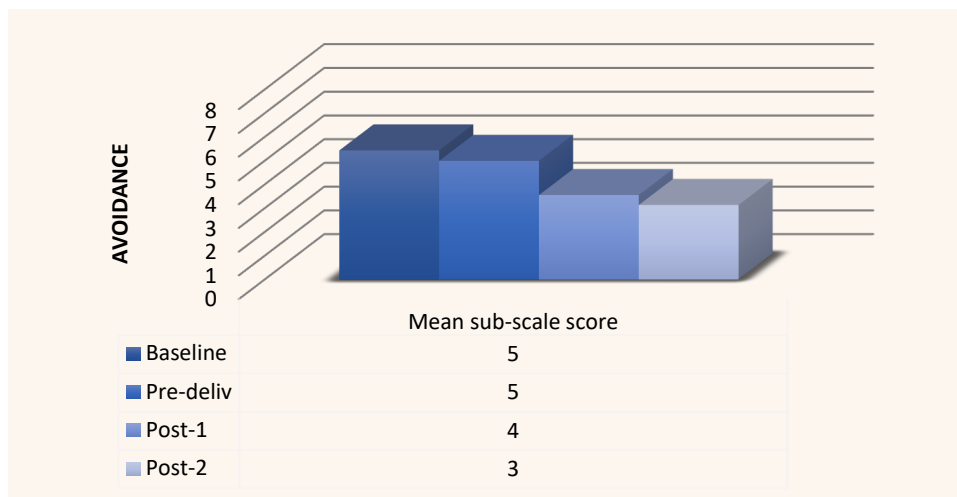


Figure 11: PCL-5 'avoidance' sub-scale scores

- **Negative alterations in cognition and mood** - a repeated measures ANOVA determined that the mean scores for the 'Negative alterations' sub-scale differed significantly across the four key periods ($F_{(3,45)}=17.216$, $p<.001$). A post-hoc pairwise comparison showed a statistically significant decrease in 'Negative alterations' sub-scale score between the baseline ($M=18.25$) and both post-delivery periods ($M=13.38$, $p=.023$; and $M=10.34$, $p<.001$, respectively), and pre-delivery ($M=16.94$) and Post-2 delivery period ($M=10.34$, $p<.001$).

Therefore, similarly to 're-experiencing' and 'avoidance', this suggests that the presence of an assistance dog may contribute a reduction effect in 'negative alterations in cognition and mood' symptoms of PTSD.

mood' symptoms of PTSD, with the effect increasing with duration of time that the assistance dog is present.

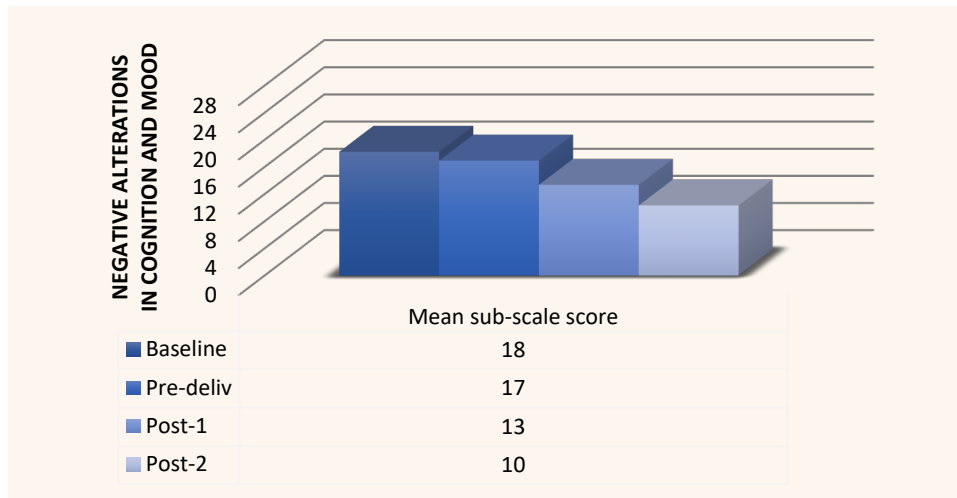


Figure 12: PCL-5 'negative alterations in cognition and mood' sub-scale scores

- Hyper-arousal* - a repeated measures ANOVA determined that the mean scores for the 'Hyper-arousal' sub-scale differed significantly across the four key periods ($F_{(3,45)}=15.212, p<.001$). A post-hoc pairwise comparison showed a statistically significant decrease in 'Hyper-arousal' sub-scale score between the baseline ($M=14.25$) and both post-delivery periods ($M=9.97, p=.032$; and $M=8.61, p<.001$; respectively) and the pre-delivery period ($M=13.75$), and both post-delivery periods ($M=9.97, p=.008$; and $M=8.61, p<.001$, respectively).

Therefore, this suggests that the presence of an assistance dog may contribute a statistically significant reduction effect in 'hyper-arousal' symptoms of PTSD, with increasing effect the longer a veteran has the assistance dog.

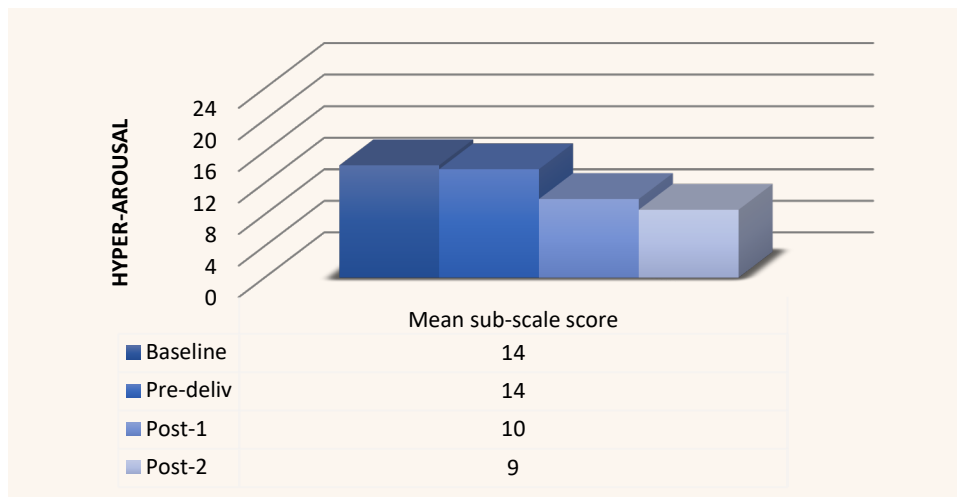


Figure 13: PCL-5 'hyper-arousal' sub-scale scores

Social Isolation

A repeated measures ANOVA determined that mean social isolation scores (measured using the *PROMIS short-form – social isolation 6a*) differed significantly across the key periods ($F_{(3,42)}=6.459, p=.001$). A post-hoc pairwise comparison showed a statistically significant decrease in social isolation

between the baseline (M=19.33) and Post-2 delivery period (M=15.67), $p=.047$) and the pre-delivery period (M=20.00) and Post-2 delivery period (M=15.67, $p=.025$).

Therefore, this suggests that the presence of an assistance dog may contribute a reduction effect in feelings of social isolation, but that the impact of this is more fully realised once the assistance dog has undergone the initial transition period of living with the veteran, rather than during the earlier stages following receipt of the assistance dog.

Visual comparison of the means across the key periods is presented in Figure 14.

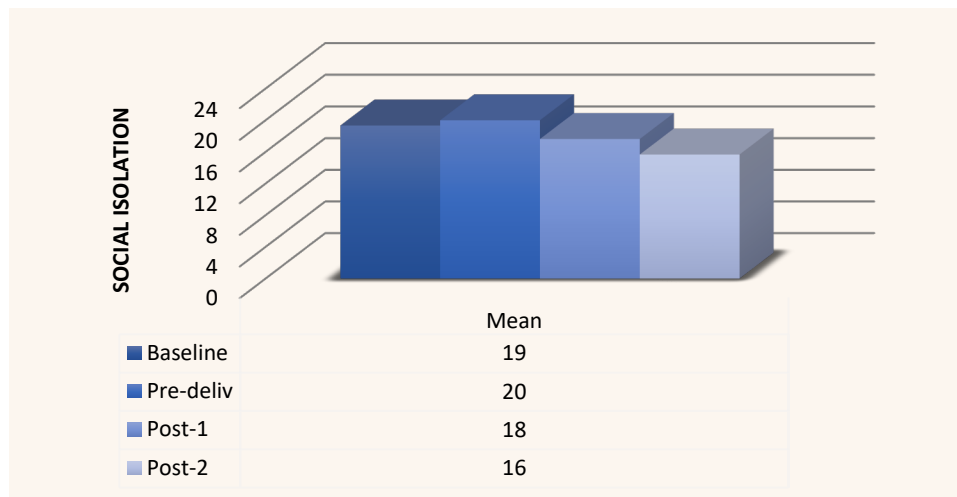


Figure 14: Social Isolation mean scores

Emotional Distress – Anger

A repeated measures ANOVA determined that mean anger scores (measured using the *PROMIS short-form – emotional distress - anger 5a*) differed significantly across the key periods ($F_{(3,42)}=5.688$, $p=.002$). A post-hoc pairwise comparison showed a statistically significant decrease in anger between the baseline (M=16.07) and Post-2 delivery period (12.73, $p=.028$).

Therefore, this suggests that the presence of an assistance dog may contribute a reduction effect in anger, but that the more statistically significant effect of this is more evident once the assistance dog has undergone the initial transition period of living with the veteran, rather than during the earlier stages following receipt of the assistance dog.

Visual comparison of the means across the key periods is presented in Figure 15.

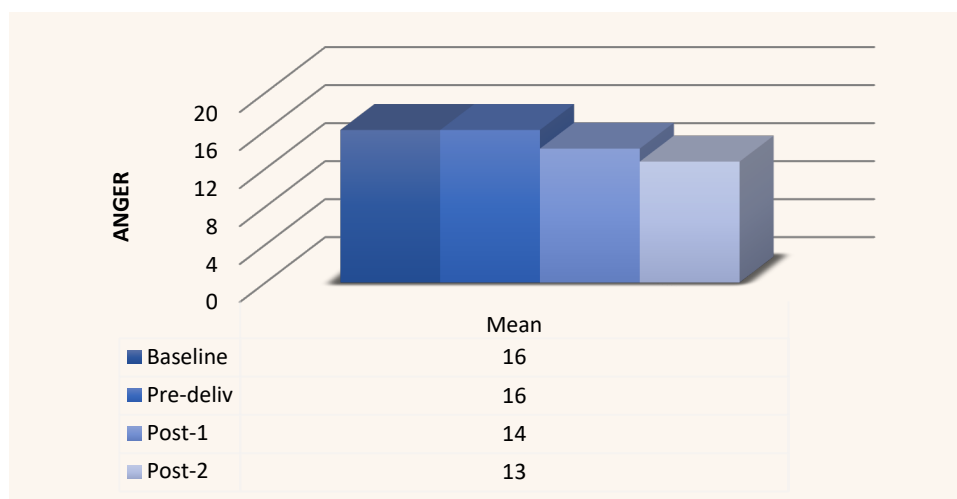


Figure 15: Anger mean scores

Anxiety

A repeated measures ANOVA determined that mean anxiety scores (measured using the *PROMIS-29 Profile v2.1*) differed significantly across the key periods ($F_{(3,42)}=8.795$, $p<.001$). A post-hoc pairwise comparison showed a statistically significant decrease in anxiety between the baseline ($M=12.47$) and both post-delivery periods ($M=10.40$, $p=.014$; and $M=9.59$, $p<.001$; respectively), and the pre-delivery ($M=12.27$) and Post-2 delivery period ($M=9.59$, $p=.020$).

Therefore, this suggests that the presence of an assistance dog may contribute a reduction effect in anxiety, with increasing effect the longer a veteran has the assistance dog.

Visual comparison of the means across the key periods is presented in Figure 16.

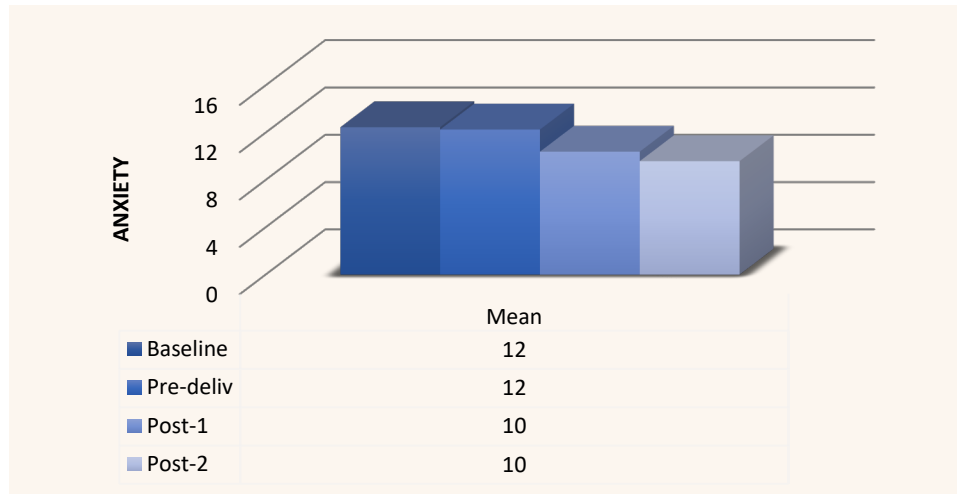


Figure 16: Anxiety mean scores

Fatigue

A repeated measures ANOVA determined that mean fatigue scores (measured using the *PROMIS-29 Profile v2.1*) differed significantly across the key periods ($F_{(3,42)}=4.230$, $p=.011$). A post-hoc pairwise comparison showed a statistically significant decrease in fatigue between the baseline ($M=14.00$) and Post-2 delivery period ($M=11.35$, $p=.027$).

Therefore, this suggests that the presence of an assistance dog may contribute a reduction effect in levels of fatigue, with this reduction occurring gradually throughout the transition period, to reaching a statistically significant reduction once the initial transition period is complete.

Visual comparison of the means across the key periods is presented in Figure 17.

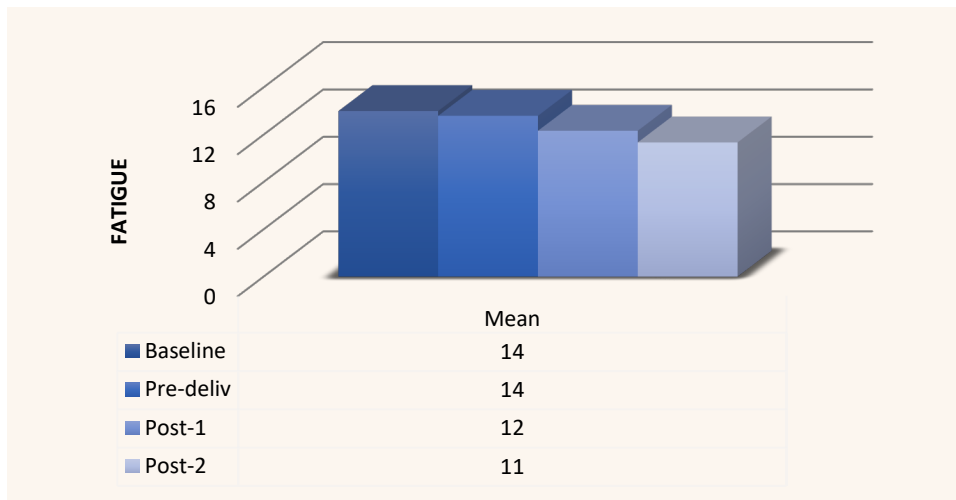


Figure 17: Fatigue mean scores

Ability to participate in social roles and activities

A repeated measures ANOVA determined that the mean scores of ability to participate in social roles and activities (measured using the *PROMIS-29 Profile v2.1*) differed significantly across the key periods ($F_{(3,42)}=5.451, p=.003$). A post-hoc pairwise comparison showed a statistically significant decrease in participation in social roles and activities between the pre-delivery ($M=13.73$) and Post-2 delivery period ($M=11.21, p=.021$).

These results indicate a reduction in the ability to participate in social roles and activities following receipt of the assistance dog. It is noted however, that due to the ongoing impact of COVID-19 lockdowns limiting social activities across much of the Trial period, this may have influenced this result independent of any impacts associated with the training program or presence of an assistance dog, and this result should be interpreted with caution.

Visual comparison of the means across the key periods is presented in Figure 18.

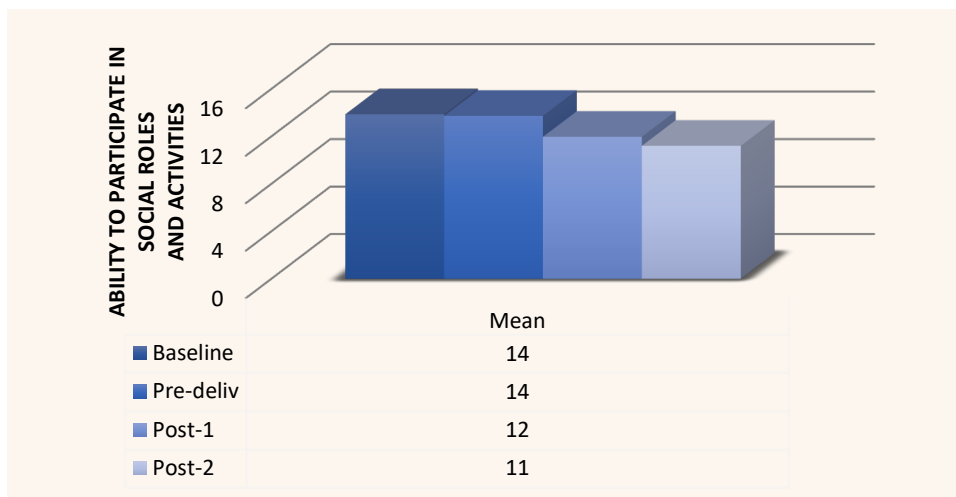


Figure 18: Ability to participate in social roles and activities mean scores

Sleep Quality

Various components of sleep quality were measured using the Pittsburgh Sleep Quality Index (PSQI), including subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction.

A repeated measures ANOVA determined that mean sleep quality scores differed significantly across the key periods for the components of subjective sleep quality ($F_{(3,42)}=3.924$, $p=.015$) and sleep disturbances ($F_{(3,42)}=4.808$, $p=.006$).

- *Subjective sleep quality* - a post-hoc pairwise comparison showed a statistically significant improvement in sleep quality between the baseline ($M=2.27$) and both post-delivery periods ($M=1.67$, $p=.015$; and $M=1.68$, $p=.016$; respectively; a lower score indicates improvement in sleep quality).

Therefore, this suggests that the presence of an assistance dog may contribute to improvement in quality of sleep.

Visual comparison of the means across the key periods is presented in Figure 19.

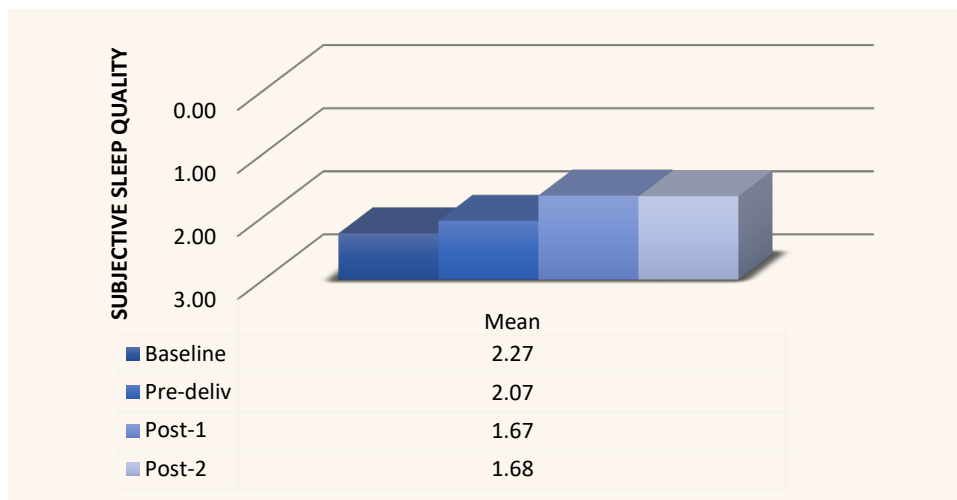


Figure 19: Subjective sleep quality mean scores

- *Sleep disturbances* - a post-hoc pairwise comparison showed a statistically significant reduction in sleep disturbance between the baseline ($M=2.07$) and Post-2 delivery period ($M=1.68$, $p=.025$).

Therefore, this suggests that the presence of an assistance dog may contribute to reduced sleep disturbance, with this reduction occurring gradually throughout the transition period, reaching a statistically significant reduction once the initial transition period is complete.

Visual comparison of the means across the key periods is presented in Figure 20.

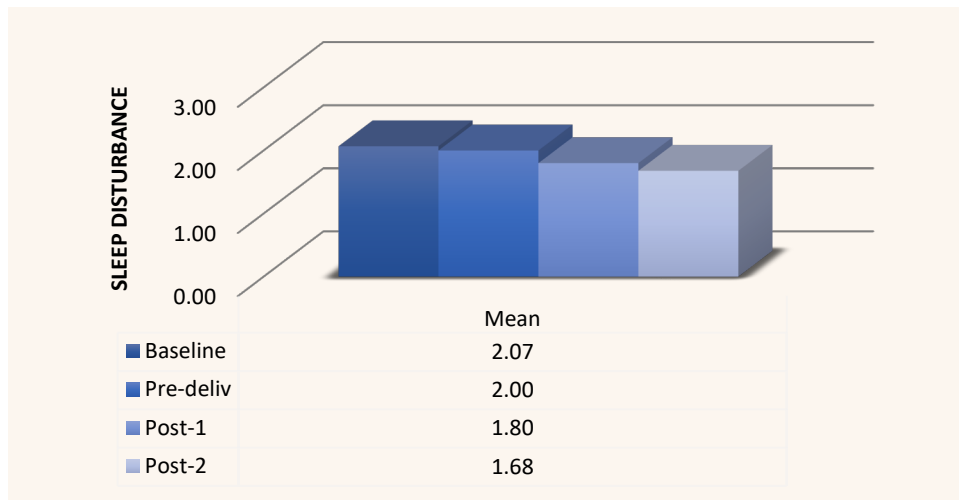


Figure 20: Sleep disturbances mean scores

Non-statistically significant findings

Veteran participants

No statistically significant differences were found for the following veteran outcomes:

- Emotional Distress – Depression/Sadness;
- Physical Functioning;
- Pain Interference;
- General Self-Efficacy; and
- Social Support perceived by the veteran in relation to the support person and other family/friends.

Emotional Distress – Depression/Sadness

Although a repeated-measures ANOVA determined that mean Emotional Distress – Depression/Sadness scores differed across the four time points ($F_{3,42} = 5.434$, $p = .003$), a post-hoc pairwise comparison showed that the changes across each of the time points were not statistically significant. Using a statistical significance of .05, the difference between baseline and Post-2 delivery period ($M=11.8$ and $M=9.5$ respectively) only marginally missed the point of significance ($p=0.51$). Given the graph in Figure 21, there appears to be a trend towards reduced depression/sadness over time, however at the time of conclusion of the evaluation this trend was not yet of statistical significance.

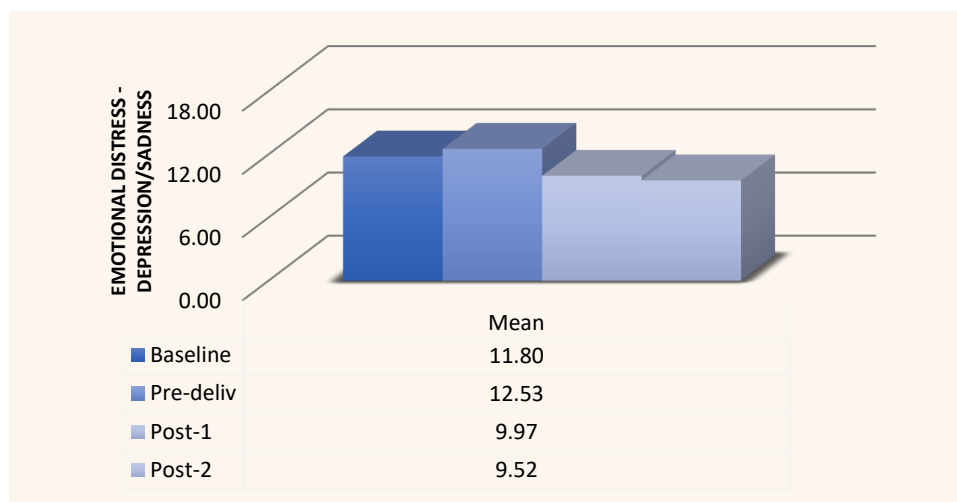


Figure 21: Emotional Distress – Depression / Sadness mean scores

Physical Functioning

No statistically significant differences were found across the time points to indicate a change in a veteran participant’s physical functioning.

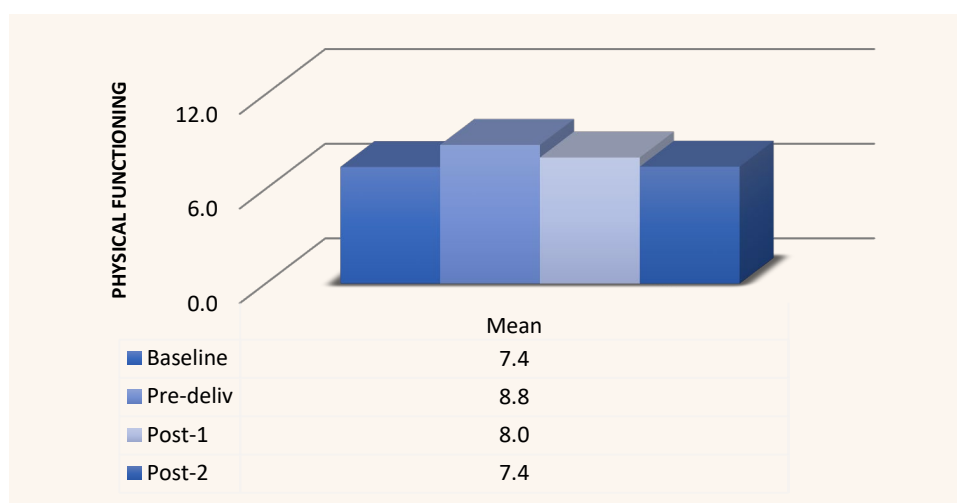


Figure 22: Physical Functioning mean scores

Pain Interference

No statistically significant differences were found across the time points to indicate a change in pain interference in a veteran participant's life.

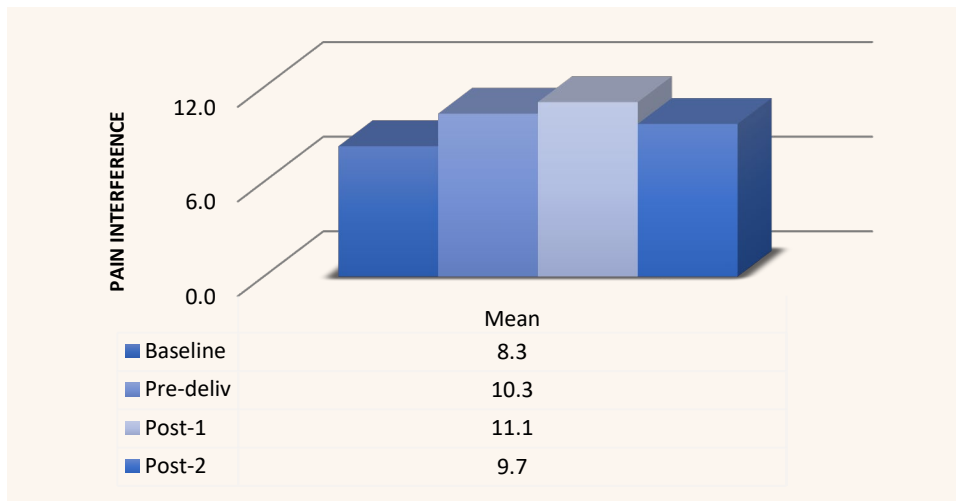


Figure 23: Pain Interference mean scores

General Self-Efficacy

No statistically significant differences in a veteran participant's levels of general self-efficacy were found across the time points of the evaluation.

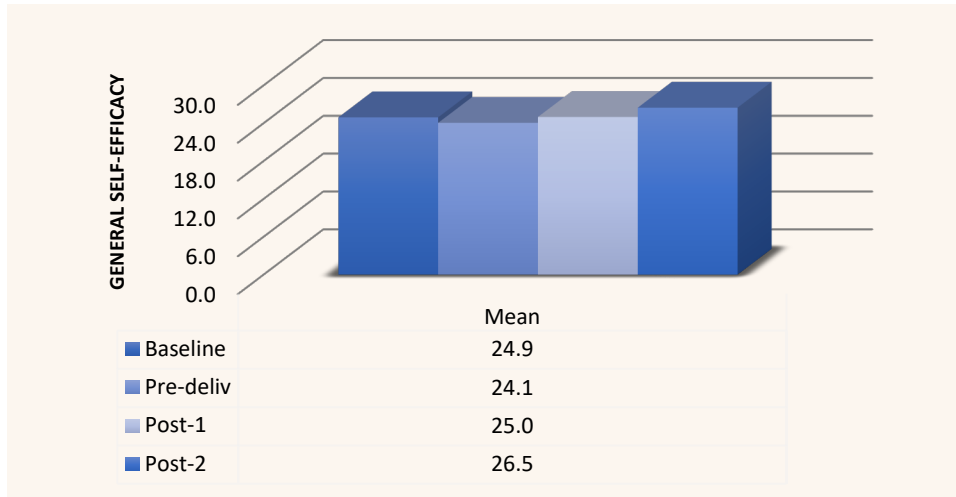


Figure 24: General Self-Efficacy mean scores

Perceived support

No statistically significant differences were found for a veteran participant's perceived support in relation to their nominated support person or other family/friends.

- Positive interactions with the support person:

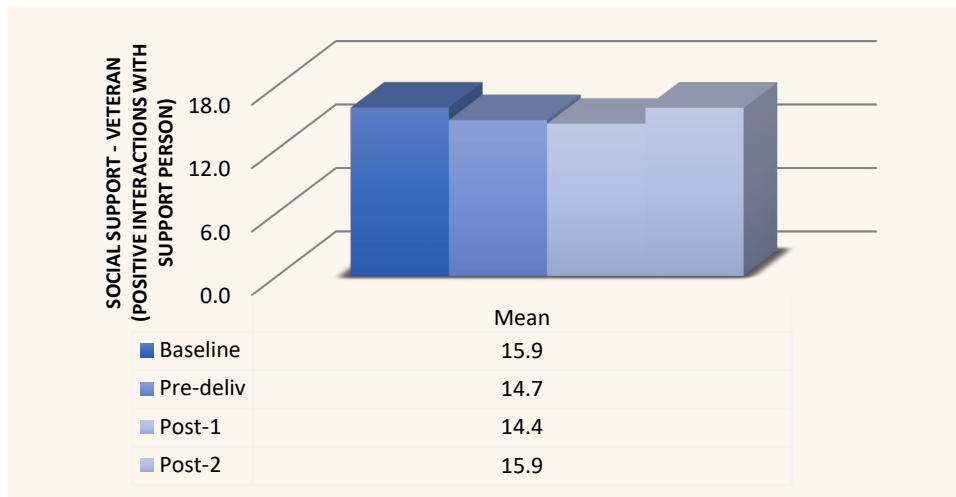


Figure 25: Veteran Social Support (+ve with support person) mean scores

- Positive interactions with other family/friends:

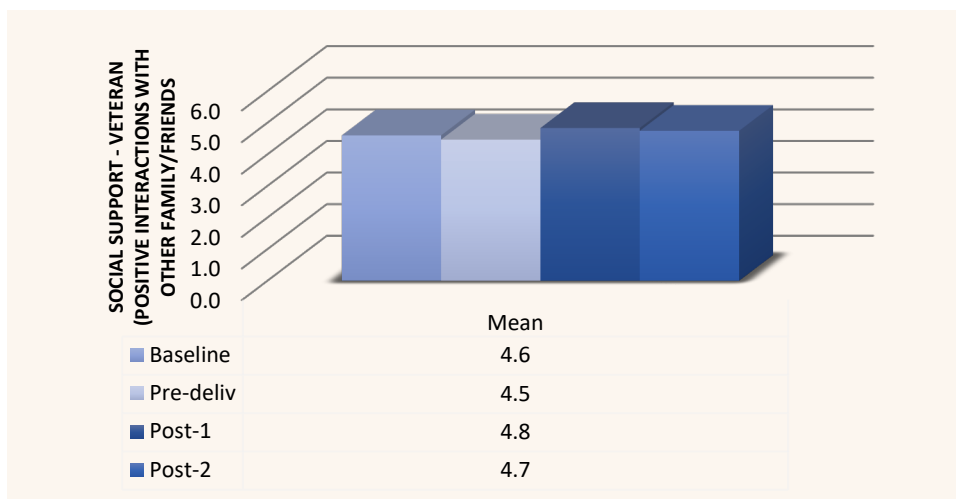


Figure 26: Veteran Social Support (+ve with other family/friends) mean scores

- Negative interactions with the support person:

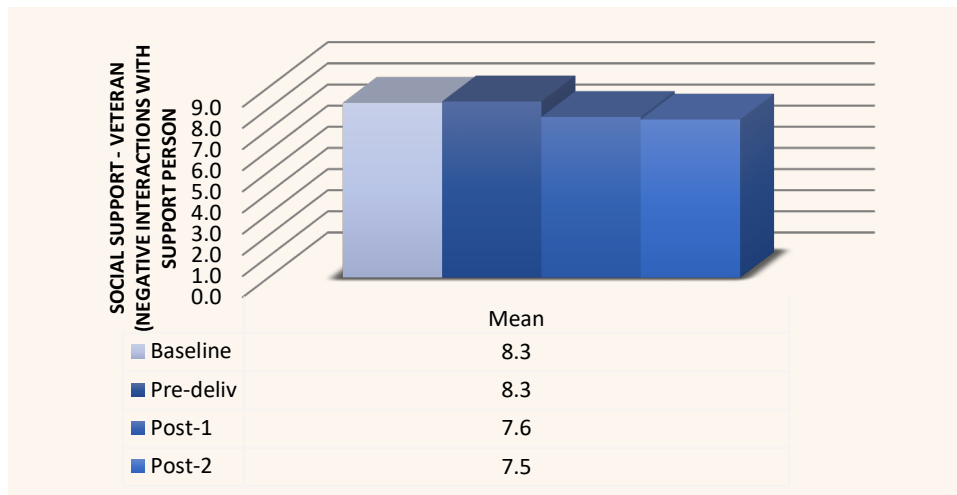


Figure 27: Veteran Social Support (-ve with support person) mean scores

- Negative interactions with other family/friends:

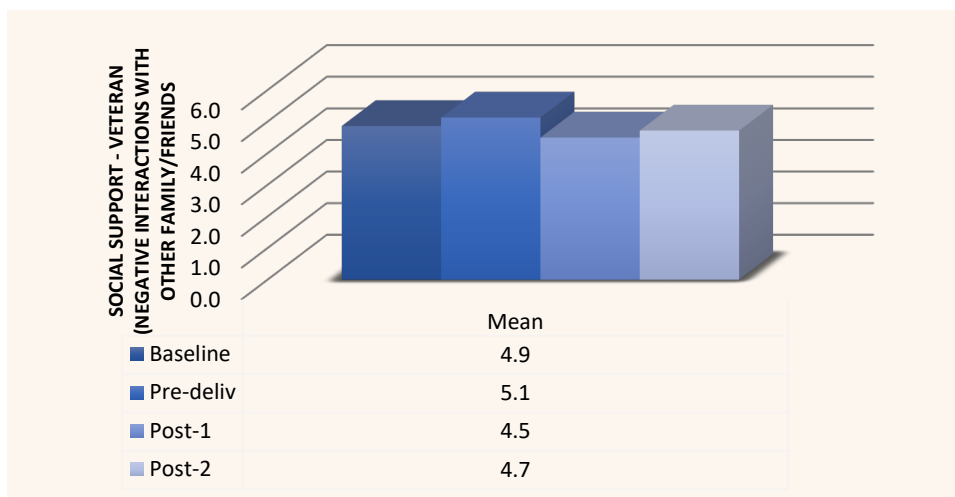


Figure 28: Veteran Social Support (-ve with other family/friends) mean scores

Support person participants

There was only one statistically significant finding in relation to social support interactions perceived by support persons in relation to their interactions with others, but not with the veteran they are supporting. No other statistically significant differences were found for any other time periods, or for the social support perceived by the support person in relation to the veteran or in relation to negative interactions with other family/friends. Further, no statistically significant differences were found in relation to the level of burden experienced by the support person.

Social Support

A statistically significant difference was found for the support person’s perception of supportive or positive interactions with other people generally ($F_{2,31} = 5.971, p = .005$), with a post-hoc pairwise comparison indicating this difference to have occurred between the baseline ($M=5.53$) and Post-1 delivery period ($M=4.57, p=.014$). However, no statistically significant change was found in perceived

positive or negative interactions of the support person with the veteran or in perceived negative interactions with other family/friends.

- Positive interactions with veteran

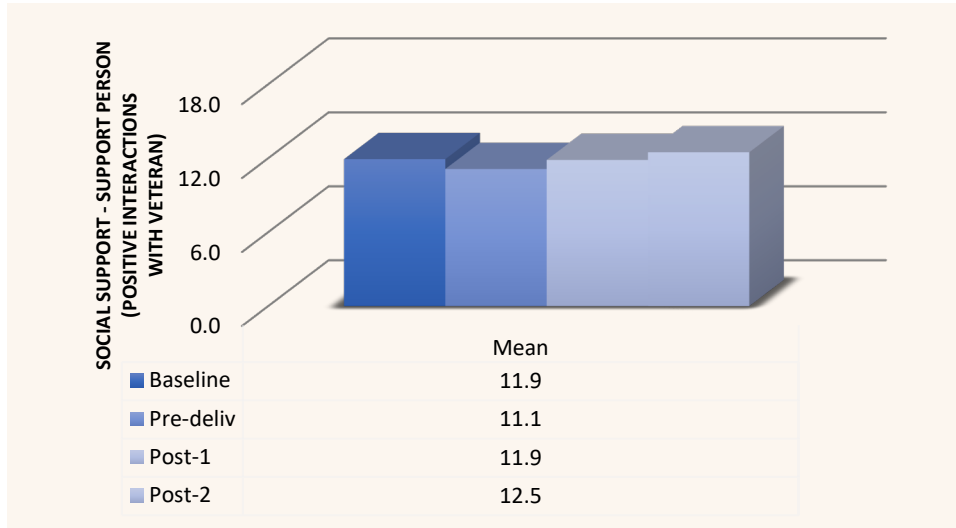


Figure 29: Support Person Social Support (+ve with veteran) mean scores

- Positive interactions with other family/friends (i.e. not specific to the veteran)

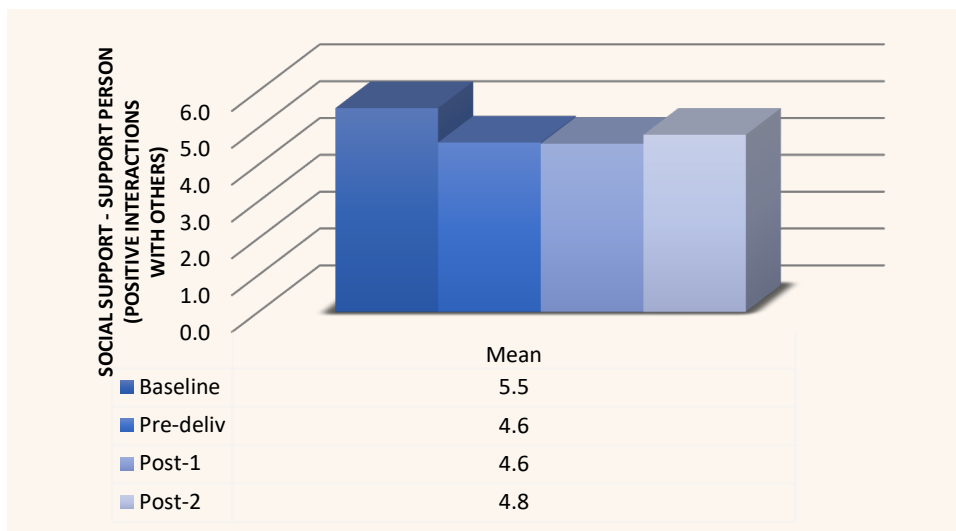


Figure 30: Support Person Social Support (+ve with others) mean scores

- Negative interactions with veteran

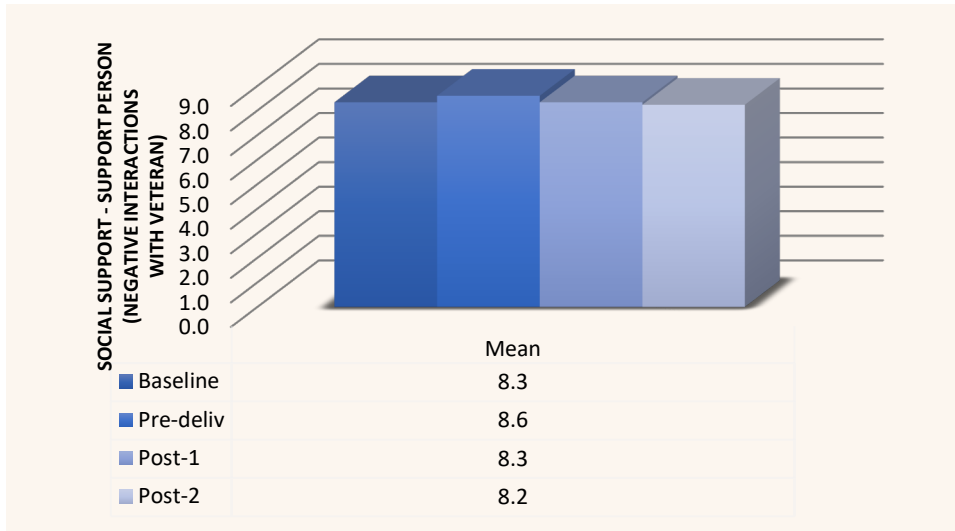


Figure 31: Support Person Social Support (-ve with veteran) mean scores

- Negative interactions with other family/friends (i.e. not specific to the veteran)

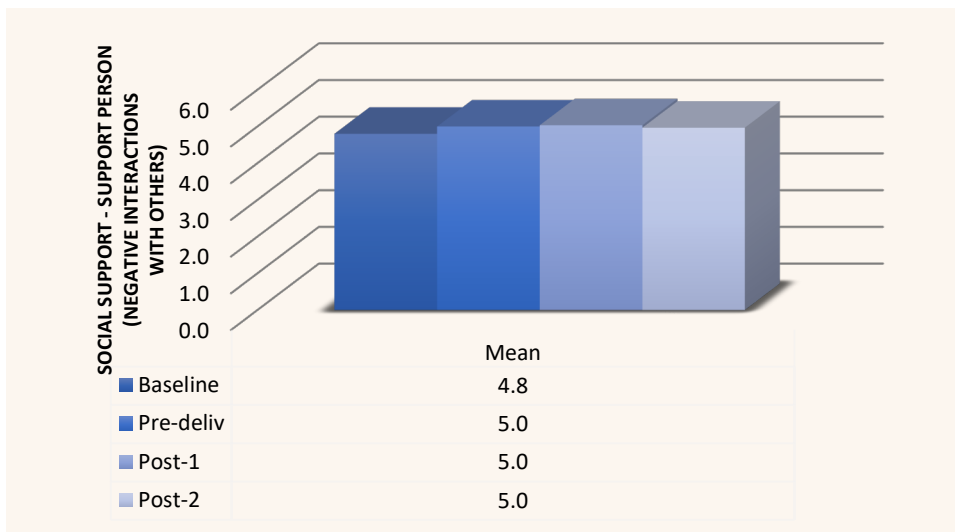


Figure 32: Support Person Social Support (-ve with others) mean scores

Carer Burden

No statistically significant change was evident for perceived burden experienced by the support person at any of the time points throughout the Trial.

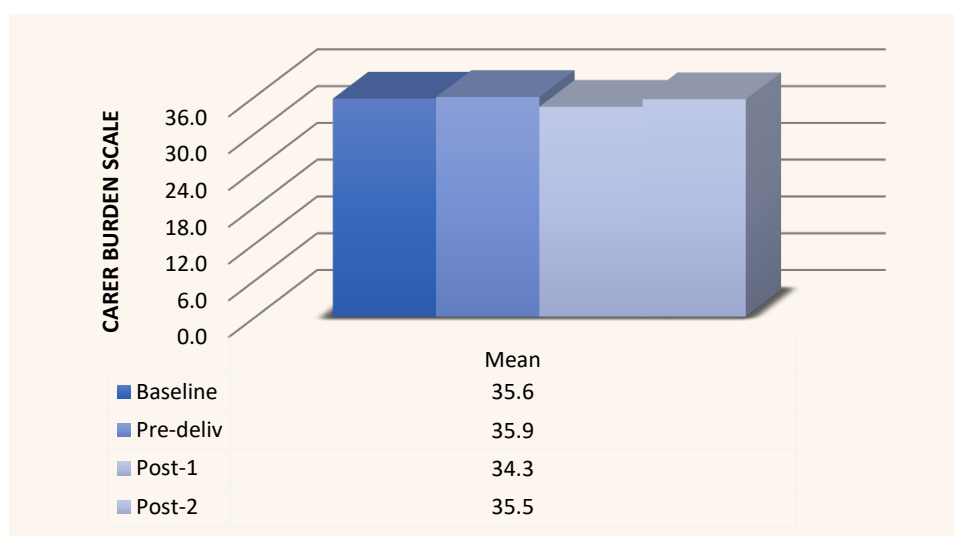


Figure 33: Carer Burden Scale mean scores

Clinician feedback

Veteran participants' treating clinicians were invited to provide feedback via an online survey. The survey was administered following the recruitment phase of the Trial, several months after a veteran had received their assistance dog, and at completion of the evaluation period. It is noted that completion of the survey was not a compulsory requirement and response rates were low, as indicated in Table 10.

Table 10: Clinician survey participation

| Survey period | Number of clinician responses |
|---------------------|-------------------------------|
| Recruitment phase | 7 |
| Early post-handover | 4 |
| Trial completion | 1 |

Recruitment phase surveys were offered to all clinicians who had referred one or more veterans to the Trial (n=12), with seven responses received. .

Surveys relating to the early post-handover period were sent to clinicians once veterans had received and had their assistance dog living with them for several months – this included clinicians who were the original referrer (n=8) and clinicians who were not the original referrer but that were now treating the veteran participant (where contact details had been shared by the participant; n=2). Some clinicians were providing treatment to multiple veteran participants, and where this was the case, provided discrete survey responses relating to each individual veteran. Responses from current treating clinicians who were the original referrer were received from four clinicians, relating to seven

veteran participants. No responses were received from current treating clinicians who were not the original referrer.

Surveys relating to the period between early post-handover and the end of the evaluation were sent to current treating clinicians to provide final feedback relating to their participating veteran client's involvement in the Trial, and in particular, outcomes or impacts of having an assistance dog on their mental health, PTSD symptoms, and psychosocial factors. Details of current clinicians were available for nine current veteran participants, and invitations were sent to their corresponding clinician (six were linked with their original referrer and three with a new clinician). Despite the majority of veteran participants remaining engaged with a clinician, feedback for this final survey was received from one clinician, in relation to two individual veteran participants.

Of the 17 veterans who completed the Trial, two had ceased involvement in any therapy with a clinician, nine reported continuing therapy at the same frequency as when they commenced in the Trial, and six reported continuing therapy but at a reduced frequency

Recruitment phase feedback

Feedback relating to the clinician's experience and perceptions of the screening and recruitment phase of the Trial was received from seven referring clinicians. Table 11 provides a summary of the feedback received.

Table 11: Clinician feedback - screening and recruitment phase

| Question | Responses | Additional feedback (if provided) |
|--|---|--|
| Trial understanding | | |
| Prior to referring to the Trial, did the information provided give the clinician a clear understanding of the Trial and what was involved? | This was assessed using a choice of 'Yes', 'Somewhat' or 'No'. <ul style="list-style-type: none"> 6 indicated 'Yes' 1 indicated 'Somewhat' | <ul style="list-style-type: none"> Where 'somewhat' was indicated, feedback suggested that information provision could be improved through the addition of a phone call and potentially also a case conference to discuss suitability of individual participants in more detail |
| Was more information sought from LTU in relation to the screening and recruitment process or inclusion/exclusion criteria when considering referral of a patient to the Trial? | This was assessed using a 'Yes' or 'No' choice: <ul style="list-style-type: none"> 2 indicated 'Yes' 5 indicated 'No' For those indicating 'Yes', how well their information needs was met was assessed using a scale from '0 - Not at all well' to '10 - Very well' <ul style="list-style-type: none"> Average response = 9 | |
| Suitability of acceptance criteria | | |
| How appropriate were the inclusion and exclusion criteria to veteran participants considered for referral to the Trial? | This was assessed using a scale from '0 - Not at all relevant' to '10 - Very relevant' <ul style="list-style-type: none"> Average response = 8.9 | <ul style="list-style-type: none"> One respondent suggested that some veterans attend for counselling but have not been formally diagnosed with PTSD (however this respondent also indicated a response of '10'). |
| Are there any additional criteria that should be considered when determining acceptance? | This was assessed using a 'Yes' or 'No' choice: <ul style="list-style-type: none"> 6 indicated 'No' 1 indicated 'Yes' | <ul style="list-style-type: none"> One respondent suggested that in the absence of a formal PTSD diagnosis, consideration should be given to PTSD symptoms while waiting for formal diagnosis. |
| Are there any criteria that should not be considered when determining acceptance? | This was assessed using a 'Yes' or 'No' choice: <ul style="list-style-type: none"> 6 indicated 'No' 1 indicated 'Yes' | <ul style="list-style-type: none"> One respondent indicated that moderate-low alcohol consumption should not be an exclusion criterion, however also indicated that they felt that a case-by-case approach had been used and that this was appropriate. |

| Ease of screening/recruitment process | | |
|--|---|--|
| How practical was the process for screening of veterans in relation to the inclusion and exclusion criteria? | <p>This was assessed using a scale from '0 – Not practical' to '10 – Very practical'</p> <ul style="list-style-type: none"> Average response = 9.1 | |
| How could the screening/recruitment process be improved? | <p>This was assessed using a free-text response.</p> <ul style="list-style-type: none"> 2 indicated that the process had been good with no improvement needed 1 indicated that the process had been good however reported frustration from the veteran as indicated in the adjacent column 1 felt that it was too soon to tell based on having referred only one veteran | <ul style="list-style-type: none"> Client experienced frustration once accepted and waiting to be introduced to training |
| Perceptions towards the Trial requirements | | |
| Based on understanding of the Trial requirements, how would you rate the overall time commitment required by the veteran to participate? | <p>This was assessed using a scale from '0 – Not demanding' to '10 – Highly demanding'</p> <ul style="list-style-type: none"> Average response = 6 | <p>Where respondents indicated that they felt there would be some demands placed on the veteran (responses ranging from '5' to '7'), this was considered to be linked with positive impacts overall, with feedback relating to their perception of higher demand including:</p> <ul style="list-style-type: none"> It is appropriate with the time commitment The veteran will need to build a relationship with an animal. The project itself needs the veteran to be committed for success. The veterans are often very busy or pre occupied with other issues and so focussing on the dog assistance trial will create demands in a positive way. The trial seeks to extend the veteran's emotional self-management in some contexts in which they have learned/acquired a rapid reaction PTSD response (anger |

| | | |
|---|---|---|
| | | <p>or anxiety), and I suspect that will be challenging. On the other hand, it seems that working with one of the specifically trained dogs, will assist with that.</p> <ul style="list-style-type: none"> ▪ Requires a commitment which I think is positive as it engages the client well in to the Trial and they achieve a sense of responsibility from the beginning ▪ Weekly appointments to learn the handling and whilst the dog is being trained |
| <p>Did you choose not to refer potential participants to the Trial as it was considered too demanding?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 6 indicated 'No' ▪ 1 indicated 'Yes' | <p>The respondent who indicated 'yes' could not identify a particular aspect of the Trial which they considered would be too demanding as they felt it was too early to tell, however had selectively chosen veterans due to this uncertainty.</p> |
| <p>What challenges were encountered in referring veterans for consideration for the Trial?</p> | <p>This was assessed using a free-text response.</p> <ul style="list-style-type: none"> ▪ 5 indicated no challenges ▪ 2 indicated challenges as outlined in adjacent column | <ul style="list-style-type: none"> ▪ One veteran was concerned about the time commitment ▪ Sometimes veterans had their own pet dog or cat and were reluctant to have a second dog. |

Post-delivery of the assistance dog phase feedback

Feedback relating to the clinician’s experience and perceptions of the Trial, based on their own observations and interactions with the veteran participant, and also qualitative feedback provided by their veteran client, was received. This feedback related to the experiences throughout the training period and including the period that the assistance dog had been living with the veteran. Feedback was received from four treating clinicians in relation to seven veteran participants for the first post-delivery survey and one clinician in relation to two participants for the second post-delivery survey. Table 12 provides a summary of the feedback received for the first post-delivery survey. Feedback relating to the second survey follows at Table 13.

Table 12: Clinician feedback - first post-dog-delivery phase

| Question | Responses | Additional feedback (if provided) |
|---|--|---|
| Clinician relationship with the veteran | | |
| Current treating relationship to the veteran? | <p>This was assessed using fixed-choice:</p> <ul style="list-style-type: none"> ▪ 6 indicated that they ‘referred the veteran to the Trial and continue to be their treating clinician’ ▪ 1 indicated that they ‘referred the veteran to the Trial however are no longer their treating clinician’ | |
| Since referral to the program, has the veteran maintained therapy sessions with the clinician? | <p>This was assessed using a ‘Yes’ or ‘No’ choice:</p> <ul style="list-style-type: none"> ▪ 6 veterans were indicated to have continued therapy sessions (‘Yes’) ▪ 1 veteran was indicated to have ceased therapy sessions (‘No’) | <p>For the veteran who has ceased therapy sessions, this was noted to have been based on a mutual decision between clinician and veteran, based on decreased need for therapy due to improvement in mental health / PTSD symptoms. No referral was therefore made to an alternate clinician.</p> |
| What has been the average frequency of therapy sessions been and has this changed in the previous twelve-month period? | <p>This was assessed using free-text:</p> <ul style="list-style-type: none"> ▪ 1 veteran has averaged weekly sessions ▪ 1 fortnightly sessions ▪ 3 monthly sessions ▪ 1 has varied due to hospital admissions | <p>Of the six veterans who have continued therapy sessions, changes in sessions frequency were noted to have changed in line with:</p> <ul style="list-style-type: none"> ▪ Increase to weekly sessions at time of dog handover due to significant change in veteran’s lifestyle (x2) ▪ Variable or reduced frequency due to hospital admissions ▪ Reduced frequency due to COVID-19 and use of telehealth ▪ Reduced frequency since the veteran has been working with their assistance dog |

| Program perceptions | | |
|---|--|--|
| <p>Has your view of the Assistance Dogs Program changed since referring the veteran to the Trial?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 2 clinicians indicated 'Yes' with varying reasons across each of the veterans she has been treating, as indicated in the adjacent column ▪ 2 indicated 'No' | <p>Feedback indicated more positive outcomes than anticipated:</p> <ul style="list-style-type: none"> ▪ The program has worked alongside the clinical therapeutic interventions that I deliver (for example, the veteran being trained to meditate with the dog for emotional regulation) ▪ The program has assisted the veteran to be more confident in public surroundings. ▪ The veteran has reported they have really looked forward to having a dog for support and to enrich their life as they have spent a lot of time at home alone recovering from illness ▪ The program has been very beneficial for improving the veteran's confidence in social situations ▪ The program is much more detailed and considerate of the family unit than initially expected. ▪ There is more support from trainers and program staff in ensuring sound fit between dog, client and family than expected |
| <p>Has the level of contact from or collaboration with the training provider during the training program been appropriate and/or helpful?</p> | <p>This was assessed using a 'Yes', 'No' or 'Not applicable' choice:</p> <p><i>Appropriate</i></p> <ul style="list-style-type: none"> ▪ 3 clinicians indicated 'Yes' ▪ 1 clinician indicated 'N/A' <p><i>Helpful</i></p> <ul style="list-style-type: none"> ▪ 3 clinicians indicated 'Yes' ▪ 1 clinician indicated 'N/A' | |
| <p>Based on current knowledge of the assistance dog training program delivery, do you feel that the program is, or could be, of benefit as an adjunct to therapy for veterans with PTSD?</p> | <p>This was assessed using a 'Yes', 'No, but I feel it could be' or 'No, and I do not feel it could be' choice:</p> <ul style="list-style-type: none"> ▪ All (4) clinicians indicated 'Yes' | <ul style="list-style-type: none"> ▪ The dog training program has assisted the veteran to interact in social situations which has developed their confidence and enhanced the trauma therapy provided by the clinician. |

| | | |
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| <p>Based on current knowledge of the training program delivery, would you consider recommending other veterans with PTSD to similar programs in future?</p> | <p>This was assessed using a 'Yes', 'No' or 'Undecided' choice:</p> <ul style="list-style-type: none"> ▪ 3 clinicians indicated 'Yes' ▪ 1 indicated 'Undecided' | <ul style="list-style-type: none"> ▪ Definitely, the dog program is an important adjunct to assisting the veteran to develop emotion regulation. ▪ The program has significantly improved psychological outcomes for this veteran. |
| <p>Assistance dog attendance at therapy sessions</p> | | |
| <p>Has the veteran attended therapy sessions with their dog accompanying them?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 1 veteran was indicated to have attended therapy sessions with their dog accompanying them ▪ 6 were indicated as not attending with their dog accompanying them | <ul style="list-style-type: none"> ▪ Given the duration veterans had had their assistance dog at the time of the survey, attendance at sessions may have been limited – this will continue to be monitored for further changes. |
| <p>Has any change been noted in the veteran's interactions with the clinician when the dog has been present, as compared to previously?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 'Yes' was indicated for the 1 veteran who has attended sessions with the dog accompanying them | <ul style="list-style-type: none"> ▪ The veteran appears to be more confident with their dog accompanying them and presents as less anxious. The veteran-dog relationship appears to be effective when the veteran is talking about traumatic events as they stroke the dog and the dog sits closely beside them. |
| <p>When the assistance dog has attended your premises with the veteran, have any issues arisen in relation to the dog being at your premises?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 'No' was indicated for the 1 veteran who has attended sessions with the dog accompanying them | |
| <p>Do you have protocols in place to manage the attendance of an assistance dog at your premises?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 'Yes' was indicated for the 1 veteran who has attended sessions with the dog accompanying them | <ul style="list-style-type: none"> ▪ The policy is written up in the waiting room and there is a mat and drinking bowl available. |

| Impacts of the assistance dog | | |
|--|---|---|
| <p>How beneficial has the inclusion of an assistance dog as an adjunct to PTSD therapy been on the <i>veteran's</i> life overall?</p> | <p>This was assessed using a scale from '1 – Highly detrimental' to '7 – Highly beneficial'</p> <ul style="list-style-type: none"> Average response = 6.8 | <ul style="list-style-type: none"> The training period has been useful for building attachment between dog and veteran. This attachment process has been pivotal with building confidence with social interactions especially in terms of experienced trauma and a usual operating mode of extreme avoidance of social relationships and crowded public places The veteran has become attached to the dog as they have spent a lot of time at home on their own while the spouse worked part time. The veteran has built up tolerance of open spaces and public transport while using the dog. It has improved the veteran's emotional state and they have enjoyed the dog walks which have helped their physical recovery following hospital admissions. The veteran has improved with their self-esteem and confidence as well as reduced his anxiety. The veteran is less aroused overall and able to regulate / switch focus /de-escalate by interaction with their assistance dog. The veteran is more grounded overall in this context. The veteran seemed more willing to leave the house and engage in some exposure activities with the dog. |
| <p>Have you noted a change in the <i>veteran's</i> mental health and/or PTSD symptoms?</p> | <p>This was assessed using a scale from '1 – Significant deterioration or negative change' to '7 – Significant improvement or positive change'</p> <ul style="list-style-type: none"> Average response = 6.3 | <ul style="list-style-type: none"> This veteran has now developed a wider social network of friends, has joined a veteran's sailing group and is considering getting their boat in the water to sail with friends. This veteran has successfully completed CPT trauma therapy and has worked through some significant grief experiences. This program has assisted in significantly improved psychological outcomes for multiple veterans as evidenced in the DASS 21 and AUDIT scores. The veteran has developed emotion regulation skills and has improved family relationships. |

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| | | <ul style="list-style-type: none"> ▪ The veteran has learned to attach to the dog, and they enjoy being with the dog, feeding it and discussing the dog with other veterans. The veteran reported feeling much happier and a greater sense of wellbeing. ▪ A reduction in anxiety and improvement in social networking. ▪ 'No change' was indicated for one veteran. |
| <p>Has there been a <i>change in medication or treatment regime</i> since the veteran became involved in the Trial and/or since they received their assistance dog?</p> | <p>This was assessed using a 'Yes' or 'No' choice:</p> <ul style="list-style-type: none"> ▪ 'Yes' was indicated for 4 veterans ▪ 'No' was indicated for 3 veterans <p>Of the 4 who have had a change:</p> <ul style="list-style-type: none"> ▪ 2 were as a result of therapist recommendation ▪ 2 resulted from a combination of veteran-initiated with guidance from the clinician/practitioner | <p>The nature of the medication/treatment changes included:</p> <ul style="list-style-type: none"> ▪ Cessation of treatment due to improved mental health and PTSD symptoms. ▪ Review of medication to more effectively control trauma symptoms following a sudden grief experience. ▪ Change in medication to treat a chronic physical illness. ▪ For a veteran who needed a change in assistance dog, they were prescribed more medication by their treating practitioner to cope with stress during the period where they were without an assistance dog. The veteran uses less medication when they have the support of their dog. |
| <p>Have you noted a reported change in the amount of <i>social activity</i> engaged in by the veteran?</p> | <p>This was assessed using a scale from '1 – Significant deterioration or negative change' to '7 – Significant improvement or positive change'</p> <ul style="list-style-type: none"> ▪ Average response = 6.8 | <p>The nature of the improvements in social activity included:</p> <ul style="list-style-type: none"> ▪ This veteran has increased their social circle of friends, has engaged with a veteran's sailing group and has participated in more cafe lunches and dinners with their social network. However during the COVID-19 restrictions this activity did not occur and the dog walks were a significant comfort in the daily routine. ▪ The veteran has been able to build up more confidence using public transport and going to shopping centres. ▪ The veteran reported that the dog walks and visits to shopping malls, friends and family have increased. ▪ The veteran has joined a veteran's sailing group and this group will meet regularly for cafe lunches. The veteran has a peer advisor to assist with developing new social activities such as going bowling. ▪ The veteran accesses the community more and is better able to cope when they have the support of an assistance dog. |

| | | |
|---|---|---|
| | | <ul style="list-style-type: none"> ▪ The client appeared more willing to engage in social activity with the assistance dog. Once the dog was not there, the veteran tended to revert to old patterns of remaining at home unless accompanied by their spouse or mother to places. (It is noted that this veteran needed to replace their original assistance dog and experienced a gap while waiting for second dog). |
| <p>Have you noted a reported change in the amount the veteran is <i>accessing the community/public places</i>?</p> | <p>This was assessed using a scale from ‘1 – Significant deterioration or negative change’ to ‘7 – Significant improvement or positive change’</p> <ul style="list-style-type: none"> ▪ Average response = 6.7 | <p>The nature of the improvements in community/public access included:</p> <ul style="list-style-type: none"> ▪ The veteran has increased visiting the RSL and participating in RSL commemorations, visiting the shopping mall and the yacht club. ▪ The veteran has increased their use of shopping centres, cafes and riding on trams and trains to events. ▪ Greater visits to shopping malls and cafes. ▪ The veteran has reported that they are more confident crossing roads and going to shopping malls. ▪ The veteran accesses the community more and is better able to cope when they have the support of an assistance dog. ▪ The veteran reported greater willingness to go shopping, to the gym, or to general outdoors with the dog. |
| <p>Have you noted a reported change in the veteran’s <i>relationships with family and/or friends</i>?</p> | <p>This was assessed using a scale from ‘1 – Significant deterioration or negative change’ to ‘7 – Significant improvement or positive change’</p> <ul style="list-style-type: none"> ▪ Average response = 6.3 | <p>‘No change’ was indicated for one veteran. The nature of the positive change for the remaining six veterans included:</p> <ul style="list-style-type: none"> ▪ The veteran's children now accompany them on dog walks. The veteran's grandchildren enjoy going on dog walks as well. The veteran reported that their relationships with family and friends have improved as they spend more time having dinners and lunches together. The veteran has reported less episodes of conflict in the family. ▪ The veteran and their spouse have improved their communication and have less episodes of conflict. The veteran has a difficult daughter-in-law and has been more able to successfully interact with her and her new baby. |

| | | |
|---|---|---|
| | | <ul style="list-style-type: none"> ▪ The veteran's family have enjoyed feeding the dog and going on walks with the dog and talking about the dog's activities to each other. The veteran has reported less conflict with their younger son. ▪ The veteran reported an improvement in friendships. However, some of the veteran's children had moved due to the COVID-19 restrictions and they had limited contact. More recently the veteran reported that their children have visited more often. ▪ Has more contact with people (although COVID-19 restrictions have hampered this). |
| <p>Have you noted a change in the level of alcohol or other non-prescription drug use?</p> | <p>This was assessed using fixed-choice responses of: 'Yes – increase', 'Yes – decrease', 'No change noted' or 'Not applicable (does not use alcohol or non-prescription drugs'</p> <ul style="list-style-type: none"> ▪ 'Yes – decrease' was indicated for 4 veterans ▪ 'No changed noted' for 1 veteran ▪ 'Not applicable' for 1 veteran | |
| <p>How beneficial do you feel that inclusion of an assistance dog has been for those providing support to the veteran (i.e. spouse, children, friends etc.)?</p> | <p>This was assessed using a scale from '1 – Highly detrimental' to '7 – Highly beneficial' with an option of 'Unable to comment/not applicable'</p> <ul style="list-style-type: none"> ▪ Average response = 7 based on 4 veterans ▪ 'Unable to comment' indicated for 3 | <p>The nature of the benefits included:</p> <ul style="list-style-type: none"> ▪ The veteran has an adult daughter with autism and she enjoys walking with and being with the dog. The other daughters and grandchildren enjoy the dog immensely. ▪ The veteran has included their spouse and daughter in the dog's walks. The veteran reported that their grandchildren really enjoy interaction with the dog when they are on visits or on holiday with their grandparents. ▪ The veteran reported that their spouse is really enjoying the presence of the dog in daily life and on family outings. The veteran reported that their two sons, especially the youngest son, have bonded with the dog and enjoy going for walks with the veteran and the dog. |

| | | |
|---|---|---|
| | | <ul style="list-style-type: none"> ▪ The veteran is able to access the community by themselves and ultimately is able to spend more time by themselves with an assistance dog. This provides much respite to family/supports. |
| Integration with therapy approach | | |
| <p>What training or information would assist clinicians to better understand and utilise dogs in therapy?</p> | <p>This was assessed using a free-text response.</p> <ul style="list-style-type: none"> ▪ All (4) clinicians provided a response | <ul style="list-style-type: none"> ▪ A comprehensive training program and manual for clinicians linked to stages of the training ▪ Access to some written resources describing this ▪ Occasional emails to remind or provide updates on developments. ▪ Programs that demonstrate how dogs are used in therapy ▪ Upfront clarity on the role of the assistance dog in the veteran's life, specifically with regard to the range of support that the dog can offer (such as waking the client from nightmares, sensing early anxiety) ▪ Some guidance on how the dog may be used as a specific support to achieving therapy outcomes |
| <p>Do you have any suggestions on ways that the training program could be integrated with the therapy approach for veterans with PTSD (i.e., to increase the benefit of the program as an adjunct to therapy)?</p> | <p>This was assessed using a free-text response</p> <ul style="list-style-type: none"> ▪ All (4) clinicians provided a response | <ul style="list-style-type: none"> ▪ The dog training program needs to be working more closely with the therapist so that tasks that promote emotion regulation can be identified for the trainer who is handling the dog. ▪ The dog training program needs to run in conjunction with the therapeutic interventions being provided. ▪ I have planned my clinical goals for lifestyle change to align with the dog training program as well as plan additional support for the veterans. It is a hard job to make one lifestyle change to improve mood or trauma symptoms so I believe that the clinical and dog training interventions need to be more systematically aligned. ▪ Perhaps an early meeting with the client, treating clinician and program clinician to share therapy goals so that the treating clinician may have early awareness of how the dog may work to support therapy goals. |

Table 13 provides a summary of the feedback received from the one clinician, in relation to two veteran clients, for the second post-delivery survey.

Table 13: Clinician feedback - second post-dog-delivery phase

| Question | Clinician feedback |
|---|---|
| Attendance at sessions with therapy dog | <ul style="list-style-type: none"> ▪ One of the veterans had been attending therapy sessions with their dog accompanying them, whereas the other had not. ▪ For the veteran attending sessions with their dog the clinician observed that with the dog present, the veteran felt more relaxed and remained close to the dog which demonstrated a secure attachment. |
| Recommendation of similar program in future to other veterans with PTSD | <ul style="list-style-type: none"> ▪ The clinician reported that based on their knowledge of the veterans’ experience with the assistance dog program, they would recommend other veterans with PTSD to a similar program in future ▪ The reason for future recommendation was that the Trial has showed them that the veterans have derived major benefits with building confidence and reducing emotional dysregulation, and that they strongly believe that this is an essential part of future treatment and support for veterans with PTSD. |
| Inclusion of an assistance dog as an adjunct to PTSD therapy | <p>For both veteran participants, based on their knowledge of the participants’ mental health and personal situations, the clinician felt that inclusion of an assistance dog as an adjunct to PTSD therapy has been highly beneficial on their life overall. The reasons for this included:</p> <ul style="list-style-type: none"> ▪ Increased confidence with social interaction with people. ▪ More focus on meditating with the dog for emotion regulation. ▪ Improved mood and a reduction in depression. ▪ Use of the dog to help regulate hypervigilance and anxiety, especially in public places. ▪ The dog being an enjoyable companion during periods of loneliness and during recovery from surgery. <p>Neither veteran was reported to have had a change in medication or treatment regime since commencing in the Trial.</p> |

| | |
|--|---|
| <p>Change in veterans' mental health and PTSD symptoms</p> | <p>The clinician reported a significant improvement and/or positive change in the veterans' mental health and PTSD symptoms, including:</p> <ul style="list-style-type: none"> ▪ Reduction in anxiety ▪ Reduction in depression ▪ Reduction in nightmares and flashbacks ▪ Improved confidence |
| <p>Change in the amount of engagement in social activity</p> | <p>A significant improvement or positive change in the amount of social activity engaged in by both participants was observed by the clinician, highlighted by:</p> <ul style="list-style-type: none"> ▪ Increased attendance at RSL and veterans' events ▪ Increased participation in social outings ▪ Increased use of public transport ▪ Increased participation in family events and outings ▪ Building more friendships ▪ Attending more regular exercise classes |
| <p>Change in the amount that the participant is accessing community / public places</p> | <p>The clinician reported a significant improvement or positive change in the amount that the participant is accessing community / public places, including:</p> <ul style="list-style-type: none"> ▪ Increased use of trains and trams ▪ Increased visits to shopping centres ▪ Increased visits to movies ▪ Going to community events ▪ Going out to lunches |
| <p>Reported change in the veterans' relationships with family and/or friends</p> | <p>Significant improvement or positive change was reported in the veterans' relationships with family and/or friends, highlighted by:</p> <ul style="list-style-type: none"> ▪ Children and grandchildren enjoying walking the dog with the veteran ▪ Increased number of family activities shared with the dog ▪ Increased enjoyment because the family members enjoy feeding, brushing and walking the dog ▪ Positive enjoyment of caring for and including the dog in family activities ▪ Increased family outings |

| | |
|--|---|
| Consumption of alcohol | The clinician observed that both veterans had reduced their use of alcohol , one by what they considered to be a significant amount. |
| Benefit to those providing support to veterans due to inclusion of an assistance dog | <p>Based on the clinician’s knowledge of the veterans’ situations they felt that the inclusion of an assistance dog has been highly beneficial to those providing support to the veterans. The reported impacts have included:</p> <ul style="list-style-type: none"> ▪ The family members experience increased positive feelings about having the dog ▪ The family members have enjoyed going for walks with the dog and being noticed by members of the public ▪ Spouses, children and grandchildren all report enjoying the dog and including the dog in family activities ▪ Working as a team to support the dog ▪ Positive emotions about the dog being part of the family ▪ A renewed positive sense of purpose with the dog included in outings and events ▪ Improved experiences with grandchildren |
| Benefit of an assistance dog program as an adjunct to therapy | <p>In relation to the benefit of an assistance dog program as an adjunct to therapy, the clinician stated that:</p> <ul style="list-style-type: none"> ▪ They strongly believe this to be an essential program for veterans, assisting them to function at their optimal level by gaining and building confidence through positive activities with the dog ▪ Both the assistance dog program and an animal assisted therapy program in clinical rooms to support veterans would be beneficial. |
| Integrating an assistance dogs program as an adjunct to therapy | <p>In relation to best integrating an assistance dogs program with a therapeutic approach, to increase the benefit as an adjunct to therapy, it was suggested that:</p> <ul style="list-style-type: none"> ▪ Veterans should be able to have access to therapy dogs in the Open Arms clinical settings and also have increased access to psychiatric assistance dogs in the community ▪ Both psychiatric assistance dogs and having animal assisted therapy in the clinical setting is a positive adjunct to therapy |

Qualitative feedback – veteran and support person

Qualitative feedback from veteran and support person participants was collected prior to assistance dog delivery. This was followed with additional feedback gained post-dog delivery and once they had progressed to the maintenance stage of the program (meaning limited contact with provider). This section outlines both pre- and post-dog delivery feedback.

Interviews were conducted with veteran participants and their support person throughout the Trial prior to and post-handover of the assistance dog. This provided the evaluators with an insight into the effectiveness of each phase of training and the impact that the different phases had on the veteran's life. The interviews were held either face-to-face, by telephone or video conferencing, depending on the veteran's personal preference and COVID-19 restrictions.

Discussion with each veteran and support person included the following themes:

- Goal setting
- Experience with program
- Impact on veteran participant's life
- Challenges

Veteran and support person feedback has been overwhelmingly positive towards the Trial and reflects a primarily positive impact for each veteran and support person to date, with the most challenging period of the Trial being during the dog handover period. The veteran cohort within the Trial presented and discussed a range of symptoms and challenges including depression, anger and anxiety, social isolation, participation in social activities and work, companionship, mental health and psychological well-being, life satisfaction and resilience. The impact that the program is having on them was discussed in relation to these symptoms and challenges and broader impacts overall. A consolidated summary of veteran and support person feedback is outlined below.

Pre-delivery training

Veteran Feedback

Goal Setting

The goals set and outlined by the veterans reflect a broad cross section of the challenges faced. Although many of the goals were common in nature, each veteran had a set of specific goals relating to their own experience, all relating to three primary themes as shown in Figure 34.

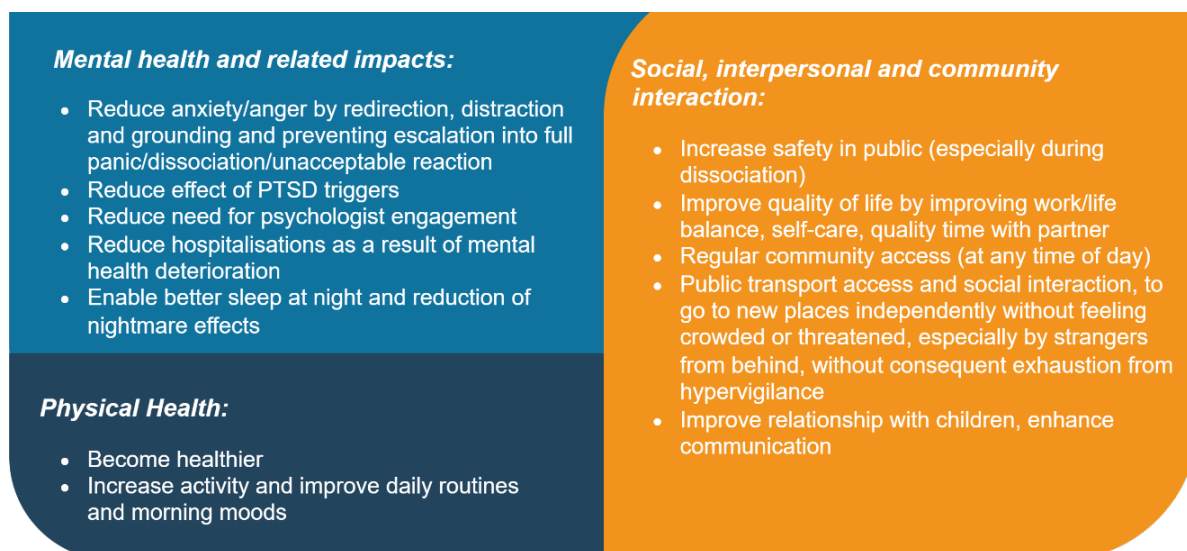


Figure 34: Veteran goals

Veteran Experience with the program (pre-dog delivery)

Veterans overwhelmingly reported having a positive experience throughout the pre-delivery stage of the program but also noted some personal challenges they had faced. Feedback provided reinforced the benefit gained from the regular and targeted interaction with both the trainer and an experienced training dog. Veterans collectively stated that the Trial has introduced a structured and regular routine which has assisted with individual motivation and overall engagement. Although individual personal challenges were reported by some participants, these participants noted the positivity of the program and its impact overall. Feedback provided by veterans in relation to the program prior to delivery of the assistance dog is summarised in Table 14.

Table 14: Veteran experience with the program (pre-dog-delivery)

| | | |
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| <p><u>Program:</u></p> <ul style="list-style-type: none">• Training program is exceptional – all trainers are passionate, enthusiastic, knowledgeable and reassuring• Training is tailored and individualised - training was condensed due to previous experience with dogs• Sessions are sharp and focussed• Training was long/slow and sometimes challenging and a potential deterrent• Would like to experience more consistency in training days as sometimes it was one day per week and others three days per week• A lot of information to remember which causes some apprehension• A clearer understanding of time frames and understanding of process regarding delivery | <p><u>Trainers:</u></p> <ul style="list-style-type: none">• Trainers have demonstrated commitment and dedication• Very confident that trainers would provide guidance through program• Trust in training staff and ultimately success | <p><u>Information Management & Communication:</u></p> <ul style="list-style-type: none">• Limited information regarding ongoing funding and upkeep of the dog post-delivery |
|--|--|--|

“I welcomed the intrusion of the training each week. It was nice to have structure and companionship again”

“Duration of the training was initially confronting, but makes absolute sense now. It is essential”

Impact on veteran participant's life

Feedback obtained relating to the impact of the Trial on the veterans' daily living during the pre-delivery training period, indicated that the first stage of training provided a good foundation and preparation for both dog and veteran. This was reported to have an overall positive impact on the veterans' lives as described in the feedback summarised in Table 15.

Table 15: Impact of pre-delivery training program on veteran's life

| | |
|---|--|
| <p><u>Mental health and related impacts:</u></p> <ul style="list-style-type: none">• Feeling an improved sense of calm when in training and around the dog• Improved confidence• Reduced anxiety about the thought of new situations• Provided companionship• Provided a sense of responsibility and purpose• Seeing and interacting with the dog provides immediate relaxation and reduces anxiety• Feeling positive effects (but also unsure as to whether this was due to a recent medication change or the training program)• Become more positive that dog will assist in instigating change in behaviour• Noticed improved mood during training periods, however, low mood returns post-training | <p><u>Lifestyle and social/community access:</u></p> <ul style="list-style-type: none">• Training has provided additional freedom and access to transport• Provided hope that some aspects of life can return to normal• Training has provided structure and an activity to look forward to each week• The dog has been calming and has helped address the issue of space when walking and not being reactive to people• Interacting and focusing on the dog provides positive distraction and redirection of triggers• Training has had a positive impact on family members• Improved confidence and engagement in activities• Slight improvement on alcohol intake |
|---|--|

Challenges

Although veteran participants have reported a positive experience overall, feedback related to challenges which were experienced during the pre-delivery stage of the training was also provided, along with anticipated challenges relating to the delivery of the assistance dog as noted below.

Table 16: Anticipated challenges prior to dog delivery

| |
|---|
| <p><u>Veteran's shared challenges:</u></p> <ul style="list-style-type: none">• Makes disability visible and being viewed as requiring an assistance dog• Managing encounters with the public• Feeling ready but apprehensive about going alone• Expectation of caring for the dog• Ability to follow the training and follow the program• Unsure about interaction with other pets and integration into the house |
|---|

"The program has been challenging, but I would not change it – it has provided me with a new outlook and greater engagement in the community"

Support Person Feedback

Goals

It is important to note that veteran-specific goals of the Trial can be, and are often, different to the goals of their support person. The role of the veteran's support person in the Trial and in their life is essential to ensure that the veteran is supported and that any early indications of the veteran participant becoming adversely impacted by the program are flagged as soon as possible. In line with the veteran participant feedback, the following support person feedback, summarised in Figure 35, relates to the first stage of the training program, prior to them receiving handover of their dog.



Figure 35: Support person goals

Experience and impact of the program (pre-dog delivery)

The support person's feedback highlighted the overall positive impact that the pre-delivery stage of the training had on both the veteran, and in most cases, the family unit. Support persons were not required to attend training with the veteran and often comments provided were based on the behaviour exhibited by the veteran post-training and during the following week. While an overall positive impact was reported during the pre-delivery training phase, support persons reported challenges that they anticipated to face following delivery of the dog. The support person experience, perceived impacts of the program, and anticipated challenges relating to delivery of the dog are summarised in Table 17.

Table 17: Support person experience, perceived program impacts and anticipated challenges

| <i>Program experience:</i> | <i>Impact of training:</i> | <i>Anticipated challenges:</i> |
|--|---|--|
| <ul style="list-style-type: none"> • Training was well received • Training had positive impact in veteran's daily activity • Interaction with trainers was positive and provided greater understanding and helped with settling in with training • Immediately enjoyed engagement with trainers and dogs • Training made veteran more focused; provided distraction of triggers within the home and community • High expectation of success • Provided veteran with an outlet and focus • Returned a sense of responsibility which had a positive impact on self-esteem • Timing of handover beneficial due to increased anxiety surrounding COVID-19 restrictions • Dogs are well matched to the veteran and the provider accommodated a change of dog when necessary | <ul style="list-style-type: none"> • Increased enthusiasm and engagement • A noticeable positive change in mental health on training days • Anxious to receive the dog • Noticed a small reduction in stress • Improved relationship with family members • Positive engagement when trainer present, however, noticeable decline in mood after training session was finished • Some anxiety relating to scheduling of training sessions • Anxious at the prospect of receiving the dog and the impact on home life and family interaction with immediate and extended family • Some frustration when veteran perceived they were ready and were expecting the dog delivery earlier | <ul style="list-style-type: none"> • Managing anxiety and managing “ups and downs” and the impact that this has on the dog • Managing expectation of the impact of the dog and keeping an open mind given veteran's high expectations of the program • Readiness to be perceived as a person with an assistance dog • Managing confrontation when dog's entry or accessibility is questioned • Becoming a point of focus in new or already familiar situations due to having assistance dog • Reduction in contact with the trainer • Feeling calmer to be able to travel more independently, without presence from support person • Being able to travel on holidays and managing the logistics of this with a dog • Conscious of additional responsibility of having a dog in the home • Transition of dog into the home • Novelty of having a dog may wear off • Changing veteran behaviour to ensure welfare of the dog is focus • Treating the dog as a pet rather than a working dog • Taking the dog to other people's houses where they do not have pets or are not open to pets in their home, and the thought of making them uncomfortable |

Experience with the Program – Post-dog delivery

Veteran and support person participants were interviewed to explore the gains and challenges the assistance dog has provided. This feedback was gained towards the end of the Trial period, however, was supplemented with qualitative feedback gathered at approximate four-monthly interviews through written survey, to gauge impacts or changes throughout the transition period. These are presented as collective responses to provide an overview of these impacts and challenges. Overall, a clear positive impact of the assistance dog on the veterans' lives was reported, however challenges throughout the transition process and beyond were also noted.

“I have had two dogs during the project and definitely noticed a loss in motivation and feeling of being overwhelmed during the period of not having a dog”

Veteran participant feedback

Veterans were asked three key questions relating to the impact of the assistance dog on their lives post-handover, with this being incorporated with broader discussion of their experience.

- Have you noticed any impact or change since your dog has been living with you in your home?
- Have there been any issues or challenges with the transition period of having your dog living with you?
- Considering your health now, as compared to when you commenced in the Trial, have you had any change in physical or mental health conditions, or changes to medications/treatment?

Feedback received in relation to these questions and the impact that the assistance dog has had on their lives post-handover is presented in Table 18 to Table 20.

Table 18: Impact or change post-assistance dog – veteran feedback

| Impact or change since the assistance dog has been living in the home |
|--|
| <p data-bbox="193 383 1398 439">Mental Health</p> <ul style="list-style-type: none"> <li data-bbox="225 439 1398 831"> <p>▪ Symptom-related impacts or observations:</p> <ul style="list-style-type: none"> - Improvement in stress, anxiety and agitation - Greater confidence in leaving the house - Improved confidence overall - Improved mood and general happiness - Reduction in negative feelings and feelings of guilt - Sleep improved for many but remains variable for others - Less impulsive behaviour - Improved anger management - Overall improved change with PTSD symptoms - Mental health in general showing improvement <li data-bbox="225 831 1398 1122"> <p>▪ Changes specifically attributed to having the dog:</p> <ul style="list-style-type: none"> - Relationship with the dog has been a positive for mood and mental health - Caring for the dog is a positive experience - Mentally the dog is calming when outside of the house - Different approach towards grounding exercises to manage PTSD symptoms - Increased responsibility of looking after a dog has had a calming benefit for many - Relaxing with the dog, exercising and interacting with her result in positive feelings - The dog provides a feeling of being “more complete” <li data-bbox="225 1122 1398 1379"> <p>▪ Impacts due to handover period:</p> <ul style="list-style-type: none"> - The handover period of the dog was stressful and challenging for many - It was a complete change in lifestyle having a dog to look after, with some likening the first couple of weeks to having a baby to care for - Handover was tiring and exhausting, and took time to develop a routine - Trainers were attending almost every day during the week and occasional weekend, this felt stressful but improved with gradually reduced frequency of visits <li data-bbox="225 1379 1398 1720"> <p>▪ Other/general:</p> <ul style="list-style-type: none"> - The dog has been of great assistance with mental health during COVID-19 lockdowns - Feeling more relaxed and safer at home - Reduction in anxiety coinciding with a change in medication (combined impact) - Feeling much better than expected and having the dog initiating positive lifestyle changes - Feeling calmer and better able to interact with others - Reduction or cessation of use of sleeping pills - More relaxed in the home environment |
| <p data-bbox="193 1720 1398 1776">Physical Health</p> <ul style="list-style-type: none"> <li data-bbox="225 1776 1398 1843"> <p>▪ The increased activity associated with caring for the dog and walking her several times a day has resulted in improved physical condition for many veterans</p> <li data-bbox="225 1843 1398 1883"> <p>▪ Many veterans experienced weight loss</p> <li data-bbox="225 1883 1398 1924"> <p>▪ Physical fitness has improved</p> <li data-bbox="225 1924 1398 1986"> <p>▪ The dog provides extrinsic motivation as there is a feeling of obligation to walk the dog</p> |

Impact or change since the assistance dog has been living in the home (continued)

Interpersonal interactions and social/community engagement

- Impact on home environment and relationships:
 - The dog provides support for spouse/partner and keeping their lives together
 - The dog has created a better home environment with veteran spouse/partners
 - Interactions with family members have improved following the dog's arrival
 - For one veteran they are feeling that it is becoming more challenging leaving the house, as they are more comfortable at home
- Social/community engagement:
 - Improved ability to get out of the house for most veterans
 - Established relationships with neighbours and dog walkers
 - The dog assists in social environments as people want to talk about them – this “breaks the ice”, provides a discussion point and reduces anxiety interacting with others
 - Increase in being out in the community and engaging with many people
 - Enjoyment of more activities such as watching their children's sport
 - The dog is very interactive and makes the veteran more interactive with others and in the community
 - A marked improvement with quality of life
 - The dog provides a greater sense of safety and confidence while away from home, and a calming effect in public situations
 - Reduction in hyper-vigilance, anxiety and panic attacks and feeling more comfortable in moving through the local community, including supermarkets etc.
 - Having to take the dog on frequent walks has encouraged them to go outside, even when their mental health is poor
- Other/general:
 - Triggers and responses are still being learned so further impacts yet to be achieved
 - There is some additional training yet to occur for the same benefit to be experienced when young children are present for some veterans
 - Generally better lifestyle and a feeling that the dog is always there for the veteran

Table 19: Issues or challenges with dog living in home – veteran feedback

| Issues or challenges with the dog living in the home |
|---|
| <i>Veteran and/or household transition:</i> |
| <ul style="list-style-type: none"> ▪ Getting the dog was initially like having a child in the house and trying to understand what she wanted and what she was comfortable with was challenging ▪ Adjusting to new routines and expectations ▪ Without the trainer’s help transition would have been overwhelming ▪ Initial difficulty adjusting to taking the dog everywhere, however once adjusted, this is now enjoyable ▪ Meeting the extra needs of a dog - food, water and the required daily outings was a difficult adjustment - over time this has become easier but for some there are still occasional days when they feel unable to do anything but the bare minimum for both their and the dog’s health ▪ As bonding increased it became easier and more relaxing ▪ Going out is more complex with the dog and needs planning and preparation ▪ Integrating with the family group was initially challenging for some, especially young children ▪ Fluctuations in PTSD and mood have varied effectiveness of the dog in some cases, however the resilience of the dog assists ▪ Tempted to treat the dog too much like a pet ▪ COVID-19 restrictions have made the transition easier in many ways ▪ None of the challenges outweigh or compare to the advantages of the dog |
| <i>Behaviour of the dog:</i> |
| <ul style="list-style-type: none"> ▪ Relapse of the dog's behaviour with other dogs; further training was taken to resolve this ▪ Several experienced issues with the dog barking (in the home and also in public settings) – intervention from trainers is noted to have been integral in resolving this ▪ Minor training issues have often been easily explained via video chat with trainers ▪ Some issues with toilet accidents in the house, with trainers engaging with veterans/support person to address this ▪ Initial issues having the dog pick up changes in mood, with this skill developing over time |
| <i>Social or community access:</i> |
| <ul style="list-style-type: none"> ▪ COVID-19 restricted ability to get out and about, however the dog was trained for all the scenarios experienced and support from the program has been thorough ▪ Issues with differentiating the therapy role from the "pet" factor ▪ Getting used to taking the dog everywhere ▪ Trouble with some business owners and public access entitlements ▪ Initial feelings of embarrassment as it made it visible that the veteran had “an issue” – many report this has improved over time |

Table 20: Change in physical/mental health post-assistance dog – veteran feedback

| Changes in physical or mental health conditions, or changes to medications when comparing current health to commencement in the Trial | |
|--|--|
| Mental health | |
| | <ul style="list-style-type: none"> ▪ PTSD therapy has opened up anxiety issues, and the dog has helped with that ▪ Improvement to overall mental health and PTSD symptoms ▪ Great improvement in anxiety and stress levels, coinciding with treatment by psychologist ▪ Increase in positive days and experiences since bringing the dog into the home ▪ Mentally stronger while addressing other concerns such as integration to society and the effects this has overall ▪ Confident to attend more activities now, even without the dog at times ▪ Calmer and better able to process information ▪ The dog has been a positive influence and comfort during COVID-19 times ▪ Have reduced frequency of psychiatrist appointments due to reduction in anxiety |
| Physical health | |
| | <ul style="list-style-type: none"> ▪ Improved physical health, physically stronger ▪ Looking after the dog increases movement and activity which in turn ▪ Some veterans report a loss of 8-10kg ▪ Sleeping better |
| Medication | |
| | <p>Individual factors have influenced medication changes, with variability across participants in line with their own personal circumstances and clinician advice, including:</p> <ul style="list-style-type: none"> ▪ Increased medication and more intense support required for developments in personal life ▪ No change to medication but overall a significant improvement to physical and mental health ▪ Mental health has improved and have reduced medication ▪ Use less “as-needed” style medications, especially for sleep ▪ Regular medication remained unchanged, but hopeful this may change in the future ▪ No change to medication, but experiencing reduction in anger and increase in feeling calmer ▪ Medication has remained the same but overall sense of well-being has improved. No longer seeking additional treatments such as transcranial magnetic stimulation |

Support Person feedback

Support person participants were asked two key questions relating to the impact of the assistance dog on their and the veteran's lives post-handover.

- Have you noticed any impact or changes since your dog has been living with you in your home?
- Have there been any issues or challenges with the transition period of having your dog living with you?

This was incorporated with broader discussion of their experience. Feedback received in relation to these questions and the impact that the assistance dog has had post-handover is presented in Table 21 and Table 22.

"It has given me more confidence in leaving my partner alone, knowing that he has the dog to care for, means I am not stressed, as he is less likely to self-harm when he has the dog with him"

"When the dog is next to the veteran, their face lights up; they laugh at the silliness of the dog's behaviour and enjoys its company when they nap; when walking the dog in the neighbourhood, they meet strangers who ask about the dog and start having regular conversations with people on the street; the dog gives the veteran moments of relief from his pain"

Table 21: Impact of assistance dog post-handover – support person feedback

| Impact or change since the assistance dog has been living with the veteran in the home |
|---|
| <p>Mental Health</p> <p><i>Observations in relation to veteran's mental health:</i></p> <ul style="list-style-type: none"> ▪ Initially stress levels increased but over time things have settled ▪ Mood is moderated with responses from the dog ▪ The dog provides immediate grounding for the veteran when stressed ▪ The dog assists with mental health as it gives something to focus on when stressed, or alone ▪ Much happier and relaxed ▪ Training provides something to look forward to and plan the week, going out to conduct training also increases activity ▪ Demonstrates a greater level of patience and mental state has been significantly more positive ▪ Sleep patterns have improved ▪ A lot more relaxed outside of the home ▪ Ceased using medication for a period of time due to the positive impact of the dog for one veteran ▪ Reduced stress and PTSD thresholds ▪ A small number did not observed any changes to symptoms or support needs ▪ One noted that veteran anxiety has increased as they worry about the dogs' behaviour in public ▪ Companionship of the dog is important <p><i>Observations in relation support person's mental health:</i></p> <ul style="list-style-type: none"> ▪ The dog provides peace of mind for some support persons, particularly in their absence ▪ Initial increase in stress level, but reduction over time ▪ Veteran's interactions with the dog provides a feeling of happiness |
| <p>Physical Health</p> <ul style="list-style-type: none"> ▪ Physical health of veteran has improved with more exercise walking the dog ▪ Hours of sleep have improved ▪ Waking up and being active earlier |
| <p>Social/Community Interaction</p> <ul style="list-style-type: none"> ▪ Interactions have improved with strangers and acquaintances who want to talk about the dog ▪ Increased participation in external events, including daily shopping, events with crowds and/or in darkened rooms, concerts and football games ▪ More confident in public, knowing that if stress increases the dog will assist in refocusing ▪ Daily interactions with local dog walking communities have improved connection to their local area ▪ Increased independence with the dog, rather than having to rely on the support person ▪ Increased participation in external events/outings has affected involvement in the daily management of the house ▪ The dog is improving in its ability to react when the veteran has panic attacks in public |

Daily Living Impacts

- Household is calmer and having the dog has allowed attention on something/someone else, has provided a nice distraction and a common topic to share at home
- The veteran is better able to deal with difficult or frustrating situations and people and we are able to talk about important aspects of our lives without anger as the first response
- Routine has been really good since the introduction of the assistance dog - for the veteran, and the dog both have routines that they complete together, providing consistency and purpose
- Home life is happier
- The dog has increased the caring responsibilities of some support persons, including some required to do most of the walks (during veteran illness), and others with feeding, grooming and disciplining the dog
- The need to walk the dog provides an incentive for the veteran to get up and get going
- It can be exhausting in public as an assistance dog is not as recognisable as a guide dog
- There is unconditional love from the dog and she has brought more structure to get us out to do things
- The dog reduces the need for some support persons to be with the veteran at all times, providing redirection of focus from the veteran's own problems and ensuring he is not always alone
- For some, making arrangements to do things like travel, see friends, and eat out is problematic and has contributed to a reluctance to go out and socialise with the dog

Table 22: Issues or challenges with assistance dog transition in home – support person feedback

Issues or challenges with the transition period of having the assistance dog living in the home

- Disruptions to some aspects of the training due to COVID-19 were challenging
- A range of behavioural issues during transition were reported, but generally improving or resolved with trainer assistance, such as barking, getting too excited with visitors, growling at other dogs or people walking past the house, not always coming on command etc.
- Socialisation with existing pets was challenging
- Establishing a consistent approach to the management and ongoing training of the dog has been challenging and at times
- Underestimated how much work and effort is involved in having a dog and did not expect the high intensity of the training
- Initial training during transition was demanding and stressful - day-to-day life stops in order to accommodate the dog
- Other household members initially having to ignore the dog so that she would bond with the veteran was challenging
- Underestimated the attention (often unwanted) that having a dog in public areas can bring
- Feeling that all decisions revolve around how the dog will behave or whether friends accept the dog in their house

Case Studies

The case studies presented on the following pages provide an insight into the experience of veterans and support persons who have progressed through the program. All veterans have been de-identified using a pseudonym.

The case studies highlight the individual nature of the outcomes experienced by each veteran or support person, with some experiencing many positive impacts, others to a lesser degree, and some, while considering the overall impact for the veteran to be positive, experiencing some challenges and areas of concern.

Veteran – Brian

Brian believes that he has had PTSD for 20 years, however, was not aware or diagnosed until recently. Brian wanted to improve his health and his goal was to become more helpful in his relationship, go to the shops, drop his child to childcare and participate in general daily tasks. Brian had not considered an assistance dog as an option, until speaking with his friend who has his own assistance dog and also seeing an article in the DVA newsletter.

Brian found the process and program recruitment straight forward but initially did not understand why the training would take so long (12-18 months) before receiving a dog and found this challenging. Brian found the first few weeks of training difficult as it had been some time since having to concentrate for any length of time and learn new skills. As the weeks passed, he noticed that the training was providing significant benefit to him physically and mentally. He also realised the benefit of the process taking so long as he felt it was a life-changing process and ensured he would be as prepared as possible. Brian found the continuity of training throughout the COVID-19 pandemic lockdown in Melbourne was extremely beneficial, enabling him to keep his routine and maintain motivation. He had moments when he felt it was getting too hard and felt like giving up.

Very early in the training Brian experienced good progress working with the trainer's dog who would block people from entering his personal space which is a key trigger for him.

Brian felt the dog handover was the hardest period of the training and was not prepared for the impact that having a dog would have on his daily life. Two weeks into the handover he wanted to quit. Brian never felt pressured to make a decision to stay or leave and was given all the time he needed to make his decision. Brian was well supported by his wife because she was seeing the positive impact the program was having on him. Brian decided to stay in the program and it took three months for him to settle into a routine post-dog-handover.

Brian believes that he has been perfectly matched to his dog. Before the dog he would be reactive to people in his personal space and constantly looking for an escape route and be ready to react when the environment escalated in his mind.

Brian feels as though that the training complemented his therapy without pressure or expectation. He felt confident with the trainer and would often talk about what was happening in his life during the training sessions which provided a great outlet.

"I was a hermit, I couldn't go to the shops on my own or drop the kids off to day care. I was prescribed anti-depressants once diagnosed which have made a significant difference however did not provide me with incentive to leave the house"

"I am so glad I was supported by my family and the program to continue as it has changed my life. I now go to the shops, take the kids to care, have attended football games and shows, these are things I have not done for years"

"My wife says she "has the old me back", my parents have commented on the change the dog has had on me, with comments such as..."we haven't seen this bloke in 20yrs"

"The dog is loved by everyone in the family and snuggles with our son. This is special. My wife has her partner back, someone she can rely on"

"I was totally 'cooked'. I hated people in general, felt worthless and had no desire to leave my house, go to social events or be near people. I have had years of psychology sessions with minimal impact, but the dog has made a difference to my life"

"When I have my children the dog sleeps with them and checks on me three or four times during the night which I love"

"I can't express enough how much this program has been of benefit. I have little doubt that my service dog has saved my life"

Veteran – John

John worked in law enforcement for over 25 years, which included a number of deployments to war-like areas as a Peacekeeper. John lives alone and has shared custody of his children; having the dog has provided him with companionship and added a positive focus to his family.

John has experienced a massive reversal in many symptoms of PTSD since having a dog. John is now very comfortable going out into the community, going to shops and events. John's PTSD is often triggered around dusk, and he would not leave the house during this time. The dog has required him to go out to walk the dog during this time and with her by his side he is able to do this without too many issues. John still has periods of feeling worthless and lonely and is extremely grateful of the companionship the dog provides. John feels he has re-integrated into the community and his life has considerably more value than it did. The dog has reduced his stress and worry about having to leave the house. John's children adore the dog. The benefits they get from her are massive.

John has found having a dog with a jacket in public difficult, as it is like a flashing light that something is different about him. John found this hard at first and would use different strategies to deal with this. John would adopt the role of a dog trainer/socialiser to take the focus off him and manage his interactions with the public.

John continues to see his psychologist every fortnight and although the dog is not the focus of his sessions, she is a positive part of the conversation. John's treatment and medication have remained consistent through the trial. He is reluctant to decrease medication and is cautious of the negative impact this could have.

The program has surpassed John's expectations. John was not a sceptic but the 'hole' he was in made him feel like nothing would help. The dog has certainly helped and made John value family, children and friends a lot more.

Veteran – Colin

Colin had a hard time facing up to his PTSD and tried everything before seeking professional help. Eventually, he sought help and his psychologist was supportive of him trying the (Assistance Dog) program.

Colin was feeling very isolated, lonely and agitated much of the time, was drinking too much and in declining general health. Anxiety and depression were persistent, and triggers of his PTSD seemed to be occurring randomly.

Simply caring for the dog has been a wonderful focus and distraction from PTSD for Colin. The affection and attention the dog gives Colin is comforting, and her intervention and reaction when he exhibits signs of agitation and anxiety and anger is effective. Colin feels the bond he and his dog have is reliable and valuable, that she is devoted and attentive, and he finds this reassuring. Colin remains on a maximum dose of medication to treat his PTSD symptoms, however, feels he is getting his symptoms under better control, which makes him optimistic instead of desperate and fearful.

Colin's exercise has improved, he is walking the dog and this has drawn him away from a sedentary life. Colin has met, knows and greets fellow dog walkers in his neighbourhood. Colin's daughter loves the dog, as does his entire family circle including grandchildren. The dog has become a regular discussion point with Colin's psychologist and has really made a difference to his life.

"I was apprehensive at first, I didn't think I deserved a dog"

"It was scary for me, and interfered with my responsibilities as sole parent to my autistic daughter"

"I am less terrified of the world, gradually becoming less isolated and drinking a little less. Having to care for the dog and take her outside for a walk on days where I am not having a great day helps turn things around"

"I am still rebuilding self-esteem, wrestling sleep and nightmare issues"

"I was hoping that the veteran's mood swings, lack of motivation to leave the house, overall health and physical activity would improve during the program"

"I have more freedoms to do things that I like without feeling guilty or worrying about my husband. I cannot thank them enough for their dedication, patience and care shown to not only my husband but our entire family"

Support Person – Jenny

Jenny is married to the veteran she supports, with two young adult sons. As a family, they moved from Melbourne during the early phases of training. The training continued to be delivered remotely with intensive blocks of one-to-one training when possible during the COVID-19 border closures. Jenny believes the program has been a positive impact on the family with early training regime (although intensive) having had an immediate positive impact on the veteran's mental and physical health.

Since moving interstate, Jenny believes the remote training and support has impacted the detail and targeted training in areas she was expecting the dog to be able to assist the veteran. The veteran and dog have been very well trained and as a team are able to negotiate most public settings; however, Jenny feels the body of work where the dog is trained to identify the veteran's anxiety and heightened behaviour has been missed due to COVID-19 and the training is not finished. She considers further intensive training is required for the dog to help the veteran achieve his overarching goal to alert and provide intervention when anxiety (and anger) is increasing and to help diffuse situations.

Many of Jenny's hopes have been achieved and the veteran is able to cope better with things he has no control over. His sleep and motivation has improved. Jenny feels he also enjoys the unconditional love from the dog no matter what his mood or state of mind. Overall, Jenny thinks most goals have been achieved, however the veteran is still working on other more involved tasks for the dog to assist to break his escalating of mood swings.

Jenny believes the dog has provided the veteran with motivation and purpose to self-initiate and undertake daily living activities on his own. Prior to introduction of the dog, the veteran had limited interaction or exercise during his day if left at home alone. He is still taking his medication and seeing a clinician and is taking more interest in his own health. He has recently decided to undergo a bariatric procedure to assist with weight loss due to an eating disorder he developed as a result of his PTSD. This is something he would not have considered prior to the program.

In relation to impacts on her own life and well-being, Jenny feels a great sense of a weight has been lifted off her and feels more assured that the dog will always be there for him no matter what.

Jenny believes that the program exceeded her expectations and that the staff were exceptionally helpful and committed to the success of the program.

Support Person – Sharon

Sharon lives with her husband of 50 years and works full time. She feels she shoulders the burden of activities that many couples share. She keeps the relationship with their children and grandchildren solid and healthy, drives everywhere, deals with all tradesmen, and organises all social activities. Sharon shapes her and the veteran's life so he can keep a routine he can cope with. She hoped the program would help the veteran better engage in these everyday activities, including conversing more, driving more, exercising more, feeling less anxious about meeting people and perhaps even drinking less alcohol.

Sharon loves the dog and feels the dog loves her; however, she finds it quite stressful. Training was restricted due to COVID-19 and she feels that the dog is not as well trained as she should be. This is compounded as there is a responsibility on the veteran to implement strategies to manage the dog's behaviour which Sharon believes does not happen.

Sharon finds taking the dog to a restaurant or gathering to be stressful as she is not sure how it will behave and is not confident her veteran will manage its behaviour. The veteran tends to get panicky and exhibits behaviours he had towards their children when they were small.

Sharon finds the dog has resulted in additional restrictions on her life and hates having to consider what she does with the dog before she can organise anything. If friends have dogs she feels as though she cannot visit them as the dog does not deal well with other dogs. She does not want to go away for a weekend because of the dog and feels she restricts them quite a lot.

COVID-19 and the variable of lockdown has contributed to these issues, as training has been limited and interactions with others when they first got the dog was 'non-existent'. Not being able to be around people and travel to places means the dog has not had repeat exposure to situations where she could make a difference. Sharon is not confident with the dog's behaviour and is reluctant to take her to a restaurant where she barks if she sees a dog outside. The dog impacts Sharon's decision on where she goes with her veteran, for example, she feels she cannot take the dog to places such as the art gallery so chooses to go without the veteran. Sharon was hoping that the dog would enable her to do more with her veteran but feels she is doing less.

Sharon expresses her love for the dog, has a tight bond and enjoys cuddles on the lounge of a night time. However, the dog is difficult to manage and has made Sharon's life more problematic and stressful. She feels that more intense training is required as there is a training gap resulting from the impact of COVID 19.

"The program has delivered some assistance to my veteran such as daily exercise and companionship but outside of this I have not experienced any changes to our daily life"

"This might be due to my own anxiety I know, but it's a reality for me"

"As the support person, I do not feel supported and am left with the care of both the dog and veteran which impacts on my own mental health"

“Conversations about difficult subjects have become approachable and easier. Our communication has improved in all aspects of our life”

Support Person – Susan

Susan hoped the program would help her partner to 'get out of his own head' and to get some perspective on life's challenges. Susan indicated that therapy with a psychologist is useful, but it encourages her partner to relive trauma; the addition of the assistance dog helps break his cycle of self-absorption.

Susan believes that the training has had a positive impact on her partner and since undertaking the training and settling in with the dog, he is much calmer within himself. He is able to listen to suggestions when he is agitated, and the attention from the dog when he becomes agitated usually de-escalates his anxiety or stress. The program has resulted in her partner having fewer outbursts and uncontrollable rages.

Susan believes that the program has had such a positive impact on her partner that it should be implemented with as many veterans as possible.

Veteran or support person withdrawal from the Trial

Three veteran participants withdrew from the Trial leaving the total participant numbers at 17. Each of the three veterans placed their program on hold, to consider this decision and to consult with their treating clinician to assess their individual circumstances, prior to their subsequent withdrawal.

Exit interviews

Exit interviews were held with the three participants to gain feedback relating to their experience in the program and reasons for withdrawing. Although each veteran cited different reasons for their decision, these were personal in nature and not systemic to the training program.

- Veteran 1: the veteran relocated to a new home within a lifestyle village during the handover period, shortly after having received their assistance dog. The new home was significantly smaller than their previous home, and with adjoining neighbours. There were some issues with the assistance dog barking and the veteran became concerned with the impact of the barking on their neighbours. This became a trigger for stress and anxiety and the veteran became reluctant to take the dog out within the community. Since moving to the lifestyle village, the veteran had become active within the village community and was engaging in exercise classes, swimming, cricket, and volunteering at the local bar. They decided it was in the best interests of all to return the dog to the training provider.
- Veteran 2: a new family dog was received weeks prior to program commencement. The veteran developed a strong bond/relationship with this dog and believed that (although not trained) it was providing significant emotional support and companionship that they did not want to jeopardise. They therefore decided to withdraw prior to receiving their assistance dog.
- Veteran 3: the veteran had caring responsibilities of their mother, who has dementia, and brother, who has challenging physical and mental health barriers. The veteran and clinician believed that the introduction of an assistance dog would assist with greater non-carer responsibility, companionship and increased community engagement; however, the caring responsibilities impacted their capacity to take on an assistance dog.

All three veterans reported a similar experience with the program, indicating that:

- Training provided was exceptional and additional interaction with trainers provided mental health benefits
- Training process was thorough and detailed; high level of consideration and matching of the dog was applied
- Training “unlocked” their social anxiety and provided motivation to engage and re-establish a routine
- Training provided an insight into the benefits of a trained assistance dog and what they can achieve for people
- The veterans continued to engage with their clinician throughout the program and jointly decided to suspend the program
- Liaison and communication with the trainers were conducted without pressure and in the veteran’s best interest.

Through their experience in the training program, each of these veterans reported short-term benefits similar to those who did receive, and continued to work with, an assistance dog. On exiting the Trial, feedback indicated that:

- Veterans found that the program had a positive impact on their mental health and had been the catalyst for greater community engagement
- The program required and encouraged them to become more active and helped to reconnect socially
- Although the program provided a 'kick start', it became evident that taking full-time care of the dog is more challenging and demanding than expected
- One veteran had become concerned that they could not provide the assistance dog with the training and attention that was required on an ongoing basis
- Veterans felt well supported by the trainers and their clinician throughout the program and although disappointed, were comfortable with the decision to withdraw.

Assessment of veteran and assistance dog teams

Ten independent team assessments (veteran and dog) were undertaken to ensure that the welfare and training of the dogs has been delivered and maintained in line with Assistance Dogs International standards. These assessments were conducted by Evolution Research team member, Darren Coldwell, in conjunction with the trainers.

Mr Coldwell is a highly regarded Assistance Dog Trainer who is Australia's current representative on the Assistance Dogs International Qualification and Standards Committee. Mr Coldwell specialises in the assessment of assistance dogs for public access, meeting the requirement of the recipient's needs within the home and public setting, the suitability of placement, welfare of the dog, and interaction between dog and recipient.

Each veteran and dog were assessed against public access criteria as outlined in the Queensland Government Guide, Hearing and Assistance Dogs Public Access Test (PAT) with additional general welfare and veteran impact feedback. All veterans and dogs achieved performance criteria outlined in the PAT, indicating that the welfare and training of the dogs has been delivered and maintained in line with Assistance Dogs International standards.

Stakeholder Feedback

Training Provider Feedback

Evolution Research maintained a continuous cycle of communication with program delivery and management staff throughout the Trial to determine progress relating to delivery of the training and program overall, and also challenges experienced throughout, from the organisational perspective of the training provider. Their feedback has been summarised in Table 23.

Table 23: Training provider feedback

| Training provider feedback |
|---|
| Program Summary |
| <ul style="list-style-type: none"> ▪ Majority of veterans have progressed very well and developed good dog handling skills, maintained motivation and have been easy to work with. ▪ A small number of veterans have proven more difficult to work with due to developing mobility and cognitive barriers; training for these veterans has required more involvement and training of the support person and/or children, more than the veteran alone. ▪ Transition from training phase to handover has proven difficult or more challenging for veterans with mobility and health issues in the following areas: <ul style="list-style-type: none"> - The dog’s need for exercise - Continued development and reinforcement of the dog’s role and the tasks performed - Redefining provision of support by the trainers and facilitating personal support systems to avoid ongoing co-dependency on the trainer (this has been more apparent with older veteran participants) - Potential for co-dependency on the trainers – by the end of the program the phasing out of support is difficult for some veterans who view the trainers as a “handrail”; in these cases, the trainers work with them to show what they are capable of and also look to the veteran’s support network to increase community contact and help build their confidence to engage in wider activities. ▪ Older veterans have a greater potential to become ill and this cannot always be foreseen; veteran illness can completely change a situation, as experienced with some veterans. – in these cases, trainers adjusted and modified the duration of the program and in some cases adapted veteran goals. ▪ More consideration needed to be given to the physical ability of the veteran during the recruitment of the 20 Trial veterans. ▪ Future program requires a greater emphasis on physical capacity and assessment of physical limitations. ▪ The availability of appropriate support needs to be considered in the referral process. |
| Trainer Overview |
| <ul style="list-style-type: none"> ▪ Handover has been the most challenging time for both trainer and veteran. During this period, home and daily living issues present and strategies are developed to help manage them, for example family issues, sleep issues and illness. ▪ Post dog handover is unpredictable and requires monitoring – veterans are provided information on how they and the dog will change, however, this is not fully understood until the veteran experiences this for themselves. |
| Program Delivery |
| <ul style="list-style-type: none"> ▪ The duration of the program is 12 months, however there are some people who can successfully have a shorter program depending on their individual circumstance. ▪ Each program is individualised with different goals and level of empowerment. ▪ A reduction in the length of the program for all could result in the dog becoming an “expensive pet” rather than a path to wellness. ▪ Interaction and input from a treating clinician are important to maintain clear focus on the program objectives. Collaboration between provider and clinician provides perspective, balance and changes in the veteran’s life. |

- Broader roll-out of the program is likely to help streamline processes, with greater ability to tailor the program as dogs can be purchased in advance and trained with an assessment of the dog's instincts at around six months, and ongoing consideration of the needs of the veteran that match with the instincts of the dogs.
- Availability and contingencies for the dog to have respite needs to be considered. Ongoing monitoring of the dog's welfare, with implementation of appropriate strategies when needed, is required.
- Ongoing support is critical to both veteran and dog as behaviours and habits change within the veteran's environment (e.g., chasing birds which is not allowed in the Public Access Test, PAT); where changes have occurred the trainers need to assist in retraining the dog back to the "perfect" state to pass the PAT.

Feedback to DVA

Throughout the evaluation, Evolution Research provided ongoing and iterative input into the DVA PAD program, which directly influenced changes to the program. Findings were used by DVA to guide and formulate changes of the broader roll-out of the DVA Assistance Dog Program, including:

1. The strengthening of the DVA Assistance Dog Program Request Form and National Guidelines. In particular, assessment of the capacity, stability and suitability of the veteran to undertake the training and look after the assistance dog, including walking the dog. These encompassed ensuring the veteran has:
 - Stable and appropriate living arrangements to house an assistance dog
 - The ability to train and care for an assistance dog
 - Support networks who can assist if necessary
 - No history of perpetrating domestic violence or history of animal abuse, this includes all members of the household
 - Not been admitted to hospital for suicide attempt/s or self-harm behaviour in the last 12 months; and
 - Not misused drugs or alcohol in the last 12 months (as far as the assessing health provider is aware)

As a result, DVA modified their Request Form to better capture these requirements through the inclusion of directly targeted questions relating to the guidelines.

2. The need for the increased awareness of the assistance dog program among clinicians and for clinicians to be involved and to reinforce the adjunctive nature of the program. This has resulted in the inclusion for dog suppliers to have access to a mental health clinician to assess risk and handle clinical issues that may arise within the Provider contract.
3. Policy on holding dogs or withdrawing them from the veteran – the support of the treating mental health clinician to assess suitability and stability for the program was emphasised
4. The Trial highlighted the importance of the veteran being able to manage both physically and mentally with the demands of the program. This resulted in the guidelines being updated to emphasise and reinforce the importance of the veteran being able to physically and mentally participate in the training program, including level of emotional resilience, the suitability of the home and outdoor spaces. In addition to this, the potential increased burden on the carer was reinforced and has become more of a focal point when assessing suitability.

Discussion

In the following section, the veteran and support person experience and outcomes are considered, followed by the experience of clinicians relating to the use of assistance dogs as an adjunct to therapy, and the impact that the assistance dog is observed to have had on their veteran clients.

Recruitment and goals

This report explores the experience of the veteran participants selected to participate in the Trial spanning March 2019 through to June 2022. All participants have provided scheduled feedback to the evaluation team since commencement.

On commencement in the Trial, veterans reported reasons for wanting to participate and what they hoped to achieve by participating and receiving an assistance dog. Goals within the Trial were found to be consistent with those achieved in other studies where dogs were trained to alert/interrupt anxiety, calm anxiety, create space for the veteran when in public and/or 'protect' the veteran from others, watch the veteran's back, wake from a nightmare, and help the veteran to greet others. In reporting these goals, some indicated a strong belief that an assistance dog would be able to assist them meet their goals, and others indicated a willingness to try, but reduced belief as to what could be achieved. Untrained characteristics or behaviours included in other studies were provision of companionship and love, being non-judgemental, giving the veteran a sense of calm, happiness, or independence, permitting the veteran to leave the house or connect to family, providing a routine for the veteran, and helping the veteran make friends (Rodriguez et al., 2020). Veteran goals specific to this Trial included:

"I was sceptical (about the program) at first, but am thankful that I participated in the program"

- Companionship and reduction of loneliness
- Positive impact of reduction in, or better management of, PTSD symptoms
- Improve mental and physical health and sense of well-being
- Lessen anxiety and depression
- Increase stability in mental health and regain some normality in life
- Regain trust in society, improve confidence and independence in public settings and activities and improve ability to get out more
- Reduce medication or try a non-medical/non-medication solution to mental health issues
- Recommended by psychologist and spouse
- Relieve burden and strain on spouse and family
- Contribute to evidence of benefits of assistance dogs in relation to veterans with PTSD, to assist future veterans.

"I have achieved my goals and more. I am mentally and physically in a better place and get more joy out of life"

Quantitative and qualitative data gathered from veterans and stakeholders indicates that the implementation of a structured, goal-oriented program that includes regular engagement of veterans with PTSD is helping address and influence veteran and support person interactions with each other, family members and the general community. The training process successfully guided 17 veterans through the program to the point of receiving their own assistance dog to live with them in their home. As veteran participants progressed to

the point of readiness to receive their assistance dog, the provider determined specific goals with each veteran participant. The most commonly reported goals included:

- Reduce anxiety/anger by redirection, distraction and grounding and prevent escalation into full panic/dissociation/unacceptable reaction
- Improve quality of life by improving work/life balance, self-care, quality time with partner
- Increase safety in public especially during dissociation
- Enable better sleep at night and reduction of nightmare effects
- Regular community access (at any time of the day) and public transport access and social interaction, to go to new places independently, without feeling crowded or threatened, especially by strangers from behind, without consequent exhaustion from hypervigilance
- Improve relationship with children, enhancing communication
- Become healthier, increase activity, improve daily routines and morning moods

Support person participants were also asked at the commencement of the Trial to indicate what they hoped that they and/or the veteran would achieve through the Trial and in receiving an assistance dog. Responses primarily focused on outcomes that the support person hoped could be achieved for the veteran, including:

- Improved quality of life through decrease in panic/anxiety attacks during activities; assistance to remain grounded during daily episodes of anxiety and trauma; support mechanism during panic attacks
- Reduction in nightmares/night terrors
- Calmer, more well-adjusted veteran both at home and in public
- Better concentration and ability to focus on tasks
- Improved mood, well-being and pleasure in things
- Increased emotional support and companionship
- Sense of unconditional love
- Someone to motivate the veteran to get out of bed and feel that they are being cared for, and to provide motivation overall
- Decreased periods of silence
- Improved physical strength and fitness through walking and other exercise
- Assisting to balance priorities
- Increased socialisation
- Provide other interest to widen focus in life
- Feeling of safety in public, resulting in enjoyment of being out again or going out as a family
- Increased independence while support person is not available/present and in attending activities, appointments and errands

Responses which were focused on hopes for what may be achieved in relation to impacts especially for the support person included:

- Reduced need for support person to focus closely on monitoring the veteran at home and while out
- Improved relationship between veteran and support person – ability to bond over the process of preparing to receive and the actual assistance dog

At the point of preparing for dog-handover, feedback from support person participants indicated commonly reported goals that they hoped the veteran would achieve through use of the assistance dog. Qualitative and quantitative data indicated that veterans and support persons have reported a continuation of personal growth and movement towards goal attainment associated with dog-delivery. Early phases of the training program indicated an initial positive response to the training from

both veteran and support person participants and further progress towards achievement of goals post-dog delivery was also evident. Key areas of goal attainment included:

- Reduction in heightened behaviour and anxiety
- Improved communication
- Increase in activities and community engagement
- Greater freedom in the community
- More balanced approach to social gatherings, including reduced alcohol intake.

While positive progress of attaining goals was evident, several veterans reiterated the importance that the assistance dog plays as a part of a holistic approach, emphasising that it should not be considered a stand-alone support or solution, but part of a scope of services and approaches.

"The program must not be viewed as a cure and used as a conduit to other DVA services. The role of the trainer cannot be misused or replace other mentoring services offered to veterans"

Veteran experience with the training program

The model used in the Trial immersed the veteran (and support person) throughout 12-18 months of training to prepare, match and support both the veteran and the selected dog to facilitate a positive outcome. Although this process was initially daunting for many veterans and support persons, all recognised the importance of the approach used by the training provider, and following their personal experience, reported viewing this as a necessary and minimum standard.

All veterans reported having a positive experience with the Trial, even where challenges had been experienced. Feedback provided reinforced the benefit gained from the regular and targeted interaction with both the trainer and experienced training dog during the initial training (pre-handover of own assistance dog). Veterans collectively stated that the training introduced a structured and regular routine which has assisted with individual motivation and overall engagement.

Feedback obtained relating to the impact of the Trial on the veterans' daily living indicated that all stages of the Trial have had an overall positive impact. These impacts related to both mental and physical health and day-to-day activities. Most veterans reported an improved sense of calm during training sessions, improved confidence, reduction in anxiety, a positive distraction and redirection of triggers. Also reported were improvements in "freedom", access to transport, a sense of responsibility and purpose and companionship. Although it is noted that these freedoms have been impacted due to the COVID-19 lockdowns in Melbourne, it should also be noted that veterans highlighted the benefit of participating in the Trial during this time from a mental health perspective.

"My lifestyle has changed considerably since having the dog. Prior to the program I was having regular panic attacks and isolating myself to avoid public interactions. Since working with the training team and receiving the dog I have now attended wine festivals, an AFL match for the first time in seven years and gone camping"

Some challenges encountered by veterans during the training program continue to be an ongoing challenge in public, including the increased visibility of disability and being viewed as a recipient of an assistance dog, managing encounters with the public, public access, feelings of apprehension and at times difficulty following the training program. While these challenges were reported, veterans stated these in a manner which indicated that it was not a negative in relation to the program, but rather aspects relating to their own concerns that need to be effectively managed. All veterans within the Trial reported at least one instance of public access refusal or uncertainty to the bona fide of the dog.

“Having a dog with a jacket in public was like a flashing light advertising that something was different about me. I found this hard at first and would use different strategies to deal with this. Often, I would adopt the role of a dog trainer to take the focus off me”

These challenges are consistent with earlier studies, stating that the responses of the general public could be challenging due to public ignorance of assistance dogs, for example, by people approaching the dog and distracting her from her work, or because the veteran felt a sense of stigma when in public (Krause-Parello & Morales, 2018; Lessard et al., 2018; Nieforth, Craig, et al., 2021; Nieforth, Rodriguez, et al., 2021; Vincent, Belleville, Gagnon, Auger, et al., 2017). Also consistent with earlier studies were difficulties in accessing public places where assistance dogs are legally entitled to go, but which are typically off-limits to pet dogs (Nieforth, Rodriguez, et al., 2021; Vincent, Belleville, Gagnon, Auger, et al., 2017; Williamson et al., 2021).

Challenges associated with the dog’s transition into the veteran’s home were evident with key areas of concern relating to the commitment of caring for the dog, disruption of daily routine and logistics of transporting and attending venues with a dog. However, the impact of this was different for each individual and influenced by existing family dynamic. Veterans with more complex family/living situations (i.e., children living at home, support person working full time) and those who had relocated away from Melbourne during the Trial expressed greater challenges during this period. It is important to note that the associated time commitment required by the veteran and support person was underestimated by participants and became a burden during this period.

“The dog handover was the hardest period of the training and I wasn’t prepared for the impact that having a dog would have on my daily life. I wanted to quit. It took three months for me to settle into a routine post hand over. I am so glad I was supported by my family and the program to continue as it has changed my life”

It is important to note that the training provider was involved in the broader roll-out of the DVA Psychiatric Assistance Dog Program during the Trial which placed pressure on their training resources and ability to support the veterans within the Trial to the level that was first experienced. Almost all veterans reported a reduction of support and disjointed training post completion of the Public Access Test of their dog. This was especially evident for veterans who resided outside of Melbourne, with all reporting that they felt that the dog and veteran required more training to fully achieve the goals and regression in the dogs’ behaviour. Veterans without the availability of a trainer in close proximity indicated they would like to have the option to engage support from a local dog training organisation to assist training support. It must also be mentioned that the management of veteran expectations, including in relation to continuation in frequency or duration of support, and the ability of an assistance dog to achieve these expectations is critical to the perceived success of the program.

Other issues raised by some veteran and support person participants included that the intensity of training was at times very demanding (primarily in the hand-over period), resulting in disruption of family routine; difficulty with integration with children; challenging dog behaviour at home and in public; limited exposure to situations due to COVID-19 restrictions; and the intensity of handover requirements.

As the Trial continued the Trial funding guidelines and provision of consumables, veterinary services and insurance for the dog was raised as an ongoing challenge by the veteran participants. Veterans indicated their preference to take ownership (correlating with greater empowerment) of the direct purchasing of this using the already established purchasing arrangements directly from DVA and not having to rely on the training provider to supply these.

Overall, the data and feedback collected throughout the Trial in relation to the experience of both the veteran and support person has provided greater insight into the potential longer-term positive

impacts that an assistance dog, when used as an adjunct to therapy, can provide for veterans. At the same time however, a number of challenges have been identified that will warrant further strategies to improve the efficacy of this adjunct.

Veteran outcomes

Statistically significant changes have been observed in many of the survey measures as they relate to PTSD symptoms, mental health impacts, physical impacts and interactions. These changes have been supported by qualitative findings.

- *PTSD symptoms*

PTSD-score, as measured by the PCL-5 (a screening tool for assessing PTSD), was considered for all participants across the duration of the Trial. All veteran participants continued to meet the minimum criteria for diagnosis of PTSD throughout the training and early post-delivery stages of the Trial, however, reductions in the severity of PTSD scores were observed across this time. Interestingly, the average PCL-5 score at the time point where the assistance dog had been living with the veteran for longer than six-months had fallen below the PCL-5 cut-off score for a provisional PTSD diagnosis (i.e., between 31 and 33). Even though further exploration within a clinical or therapeutic treatment setting would be required to confirm this, the findings show a statistically significant and positive reduction in overall PTSD symptoms for veterans with an assistance dog, with potential sub-threshold symptoms of PTSD evident. The reduction in average PCL-5 score reduced from 49 (out of a maximum possible score of 80) at commencement of the Trial, to 35 and then 29 at the subsequent post-delivery periods.

Examination of the subscale scores of 're-experiencing', 'avoidance', 'negative alterations in cognition and mood items' and 'hyper-arousal' indicated statistically significant changes of note for each of the four sub-scales. For all sub-scales, the results indicate that reductions appear related to the delivery of the assistance dog, with statistically significant reductions occurring between the baseline and both post-delivery periods, but not between baseline and pre-delivery periods for any sub-scale. Results indicate a 're-experiencing' sub-scale reduction from 11.13 (out of a maximum possible score of 20) at baseline to 6.57 at the greater than six-months post-delivery period. The results of the 'avoidance' sub-scale showed a reduction from 5.44 at baseline (out of a maximum possible score of 8), to 3.14 at the greater than six-months post-delivery period. Similarly, there is a 'negative alterations in cognition and mood items' sub-scale reduction from 18.25 at baseline (out of a maximum possible score of 28) to 10.34 at the greater than six-months post-delivery period. Finally, there is a 'hyper-arousal' sub-scale score reduction from 14.25 (out of a maximum possible score of 24) to 8.61 at the greater than six-months post-delivery period.

These findings directly correlate with the qualitative information collected from veterans throughout the trial who indicated the relationship with the dog has been a positive for mood and mental health. Veterans reported an increased sense of calm and feeling of safety outside of the home when accompanied by their dog. A number of veterans made specific reference to a reduction in hyper-vigilance and feeling more comfortable in moving through the local community and shopping centres. The most acute demonstration of this is the number of veterans (n=5) who have been able to successfully relocate from Melbourne to different towns or states during the program. A veteran who was living alone at the commencement of the program, reported that without the dog he would still be living in his inner suburban apartment in the middle of Melbourne with limited contact to the outside world and is now living interstate in a new and positive relationship with a partner.

The positive impact that the presence and intervention that the assistance dog has had on multiple veterans in relation to suicidal ideation or self-harm behaviours must be recognised. Four veterans (and corresponding feedback from two of their support persons) clearly indicated that the dog was pivotal in preventing self-harm and suicide. The importance and power of this feedback cannot be underestimated given the recent research which highlights that ex-serving males and females were more likely to die by suicide than the general Australian population (Australian Institute of Health and Welfare, 2021).

“Life has been terrible for me recently and without the dog I’m not sure you would be talking to me”

Although PTSD symptoms are still experienced by the veterans, the reduction in symptom severity is encouraging in relation to the potential benefits of the impact of the presence of an assistance dog.

- *Social Isolation*

The analyses indicated a statistically significant decrease in social isolation between the baseline and post-delivery periods. A slight but non-statistically significant increase in social isolation was observed between the baseline and pre-delivery periods, however, it is noted that for many participants, this corresponded with the emergence of COVID-19 and subsequent lengthy lockdown periods, and this may have influenced this result. When considering the overall findings, a reduction in social isolation appears to be associated with presence of the assistance dog. The average social isolation score at baseline was 19.33 and at pre-delivery was 20.0, which then statistically significantly reduces to 15.67 at the greater than six-months post-delivery period. The association of the reduction with delivery of the assistance dog is further strengthened given there was no statistically significant difference between base and pre-delivery periods, during which time the veterans experienced increased social exposure through interactions with the trainers during the training program.

This was consistent with veteran feedback indicating that the dog assists in social environments, provides a discussion point and reduces anxiety. All veterans reported an increase of community engagement and participating in more daily living activities outside of the home with more confidence. Having the increased responsibility of caring for the dog has attributed to this due to the frequency required to exercise the dog. Feedback indicates that as the dog is a very interactive animal it makes the veteran more interactive with others in the community. Veterans reported a marked improvement with quality of life, leaving the house and interacting in unstructured environments. Veterans also indicated that they are shopping with less anxiety and panic attacks and have a greater sense of safety and confidence while away from home.

- *Emotional Distress – Anger*

The findings indicate a statistically significant reduction in anger from a baseline score of 16.07 to a score of 12.73 at the greater than six-months post-delivery period, with no other statistical significance observed between the other time periods. There is an overall trend observed in anger reduction following receipt of the assistance dog, however, which may suggest that the presence of the assistance dog contributes a reduction effect in anger, but that the more statistically significant effect of this is evident the longer the assistance dog has been living with the veteran.

“I am calmer and less reactive to certain situations than I was. I seem to get more respect from people”

Qualitative feedback supports this reduction with many veterans talking about the ‘grounding’ and ability of the dog to refocus their thoughts during times of tension. Veterans reported the ability of the dog to help regulate their mood and stay on “an even keel”. To a lesser extent, the dog’s ability to alert the veteran before the escalation of conflict and provide comfort post-conflict was also reported.

- **Anxiety**

Findings suggest that there has been a statistically significant reduction in anxiety associated with delivery of the assistance dog. The average score at baseline was 12.47, reducing to 10.40 during the initial six-months post-delivery, and further to 9.59 at the greater than six-months post-delivery period. No significant difference was found between baseline and pre-delivery or between either of the post-delivery scores, which may suggest that the change in presence of the dog is the primary driver for the reduction in anxiety.

Again, qualitative feedback supports a reduction in anxiety experienced by veterans in many settings throughout their home life and when interacting in community and social settings, with the veterans attributing much of this reduction to the ability of the dog to assist in grounding them, alerting them when anxiety levels started to escalate, and providing comfort and refocusing of their attention and mood.

“The dog has reduced my anxiety and I am sleeping better. I am still taking my medication and seeing my psychologist but I am having less episodes and daily living is easier”

- **Fatigue**

There was an overall trend of reduction in fatigue across the Trial, with this reduction reaching statistical significance between the baseline and greater than six-months post-delivery periods. The average baseline fatigue score was 14.00, reducing to 11.35 at the greater than six-months post-delivery period.

All veterans reported an increase of physical activity and fitness as a result of the Trial. This initially resulted from the introduction of the trainer and training dog into the veteran’s weekly routine and then continued to build throughout the Trial as the veteran took full-time responsibility for the dog. The program provides a minimum expectation of daily exercise for the dog, which the veteran is responsible for implementing. This has resulted in a positive unintended consequence of greater fitness and less fatigue.

- **Ability to participate in social roles and activities**

The results indicate a trending reduction in the ability to participate in social roles and activities over the course of the Trial, with a statistically significant difference between the pre-delivery and greater than six-months post-delivery periods (average scores of 13.73 and 11.21 respectively). It is noted however, that due to the impact of COVID-19, lockdowns directly limited social activities across much of the Trial period and this may have influenced this result external to any impacts associated with the training program or presence of an assistance dog. As such, in considering the direct impacts on social roles and activities associated with the COVID-19 pandemic, this needs to be taken into account.

The ability to participate in social activities and community events presented as a key barrier for many of the veterans at the beginning of the Trial, as reflected in the goals they set at the commencement of the program. All veterans have indicated a substantial improvement, even with the impact of COVID-19 lockdowns on the program. Interestingly, many veterans viewed

COVID-19 as having a positive impact on their ability to re-engage with the community, attend shopping centres and manage their interactions with the general public. The ability to have an exemption to continue training throughout the COVID-19 lockdowns allowed veterans to learn and train with the trainer and dog in a less threatening environment with less people and variables to manage. The disadvantage of this scenario was that post COVID-19 lockdowns and a return to a 'normal' setting, the dog had not been exposed to some of the scenarios that the veteran would be experiencing and further training has been required.

- *Sleep Quality*

- Subjective sleep quality – the findings suggest that perceived improvements in sleep quality have occurred following delivery of the assistance dog, with statistically significant differences observed between baseline score and both post-delivery periods. The average baseline score was 2.27, compared to 1.67 during the first six-months post-delivery and 1.68 at the greater than six-months post-delivery period (a lower score indicates improvement in sleep quality, with 0 indicating “very good” sleep quality and 3 “very bad” sleep quality). Considering this, the lack of statistically significant change between baseline (2.27) and pre-delivery scores (2.07) may indicate that the presence of the assistance dog has contributed to improved perceptions of sleep quality.
- Sleep disturbances – the findings demonstrate a trend in reduced sleep disturbance across the life of the Trial, with larger reductions seen post-delivery of the assistance dog, becoming statistically significant when comparing the baseline average score of 2.07 and greater than six-months post-delivery period score of 1.68. These findings may suggest that the presence of an assistance dog may contribute to reduced sleep disturbance, with this reduction occurring gradually throughout the transition period, to reaching a statistically significant reduction once the initial transition period is complete.

Anecdotally, almost all veterans reported that the dog has played an active part in increasing their sleep health. The management of the dog in relation to sleep is different for each veteran and is also determined by their personal relationship of having or not having a partner. Veterans whose sleep has improved have reported a reduction in the impact that their nightmares have on them as the dog is able to alert them to their restlessness or agitation before becoming embedded in their dream. A small number of veterans reported that since having the dog living with them they have been able to sleep through the night for the first time in many years.

Non-statistically significant findings

Although some of the outcomes were found to be non-statistically significant, trends and qualitative feedback suggest some changes which merit further discussion.

- *Emotional Distress – Depression and Sadness*

When considering the findings relating to *Emotional Distress – Depression and Sadness*, it is considered noteworthy that results indicated a statistically significant difference overall across the time points of the Trial, however, when individual time periods were compared, statistical significance was not reached. Using a statistical significance level of $p=.05$, the difference between average baseline score (11.8) and the average score at the greater than six-months post-delivery period (9.5) only marginally missed the required significance level ($p=0.51$). It is recognised that this clearly means a statistically significant difference has not been found; however, in examining the trend in depression/sadness over time throughout the Trial, a

reduction is observed following delivery of the dog and if the evaluation period had extended over a longer duration, it would be of interest to see if the trend had continued.

- *Physical Functioning*

It is important to delineate the difference between physical function and physical activity or fitness when looking at this result. Although no statistical difference was observed in relation to physical function (such as completing chores like vacuuming or yard work, navigating stairs, walking at least 15 minutes and running errands), anecdotally, all veterans reported an improvement in physical activity and fitness associated with the program with many veterans reporting a remarkable reduction in weight and co-morbidities.

- *General Self-Efficacy and perceived social support*

Qualitative feedback from veterans relating to the need for, or reliance on, the support person for social support and community engagement clearly indicated that the dog has been a catalyst in motivating and assisting them to re-engage in their community and undertake a wider range of social activities. Many veterans reported that the dog has enabled them to attend events not only independently, but for the first time, with or without their support person, in many years. This includes events such as large sporting events, watching their children participate in sport, attend wine festivals, go camping and ultimately relocate to a different state or town.

“As a single veteran living alone, the dog has completely changed my life. It has provided me with the support and motivation to increase my community interaction and has resulted in me relocating to a different state, finding a new partner and leading a healthier life”

Support person findings

In relation to Trial impacts on those providing support to the veteran, feedback provided by support person participants highlighted that there has been an overall positive impact of the Trial on the veteran, and in most cases the family unit; however, the dog transition to the home and behaviour management of the dog are challenging. As most support persons are not required to attend training with the veteran throughout the program, the support person comments reflected their experiences and observations of the veteran post-training, between training sessions and the integration of the dog into the home. Most veteran participants were reported to be demonstrating a positive change in many elements of their mental health, including enthusiasm, engagement, increased sense of responsibility and improved self-esteem. In addition, for most, the timing of handover was reportedly beneficial due to increased anxiety surrounding COVID-19 impacts.

Challenges experienced by the veteran, as perceived by the support person based on their observations and interactions, included: management of anxiety and managing “ups and downs” and the impact that this has on the dog; feeling conscious of additional responsibility of having a dog in the home; managing expectation of the impact of the dog; readiness to be perceived as a person with an assistance dog; managing confrontation when the dog’s entry or accessibility is questioned; and keeping an open mind as veteran expectations of the program are high.

It is important to recognise the change in household dynamics that extended COVID-19 lockdowns have had on veteran and support person participants. This includes recognising that the introduction of the assistance dog has not come without challenges to the support person participant where they are also living in the same household. Although qualitative feedback relating to veteran achievements was generally positive, there are mixed reports regarding the benefit to the support person, with minimal improvement noted. These results are in keeping with findings of surveys completed by support

“I feel as though I need to be trained and included in public access accreditation as I have to take care of the dog when my veteran is unwell and cannot get out of bed”

“The training was intense, and we found it difficult to manage the requirement of daily training during the hand over and had to cut it down to three times per week. We needed down time and needed to fail to work out what skills we needed to work on”

persons, and also with previous research where the dog reduced partner stress while simultaneously placing an additional care burden on the partner (Nieforth, Craig, et al., 2021). The impact on the support person of the added commitment to care for the dog, and continuing the training of the dog, cannot be underestimated and needs to be at the forefront of future programs.

Analysis of survey data indicates minimal change for support persons across the life of the Trial in relation to measures associated with impacts on burden and social support, however

qualitative feedback indicates that, for some, there has been a reduction in aspects of carer burden, and a perceived improvement in their relationship with the veteran.

- *Support person burden*

No statistically significant change was evident for perceived burden experienced by the support person at any of the time points throughout the Trial. In examining the average scores of each of the time points, very minimal change was observed from baseline (35.6) to pre-delivery (35.9), during the initial six-months post-delivery (34.3) or at the greater than six-months post-delivery period (35.5).

Anecdotally however, support persons provided mixed feedback relating to the burden of care experienced during the Trial. Each veteran’s and support person’s experience is unique and influenced by many variables such as living arrangement, family, existing relationships, personal health, and expectation of the program, all of which impact their experience and perception of the program. It was evident that the support person of the veteran intrinsically views their role as carer and support for the veteran, and throughout the Trial had difficulty reflecting on the value of having an assistance dog in the house as it related to the impact on themselves rather than on the veteran.

Although survey data indicated that there was no statistically significant change to the perceived burden of care for support persons,

“The dog has been able to reduce my role as motivator and manager of the daily routine to the point where I have gained new employment working shift work. This is the first time I have been able to do something for myself and have taken a position that does not revolve around having to be at home to support him”

qualitative feedback suggests that this

“Having the dog at home gives me greater peace of mind that he will be okay”

fluctuated throughout the program, with the dog hand-over phase and transition of the dog to living in the home being the most stressful, and in effect, increased the burden of care for support persons. This was especially evident for support persons with children or in full time employment. The handover period was reported as intense and added another layer of responsibility to the support person,

especially if the veteran was unwell (mentally or physically) and unable to carry out the training of the dog. For veteran and support person partnerships where they co-habited without dependants, or where there had not been a decline in health, feedback was more positive and a reduction in the burden of care was reported. Some support persons reported that since the assistance dog has been living with the veteran in the home, the burden on their time and their mental health has reduced due to reduction in concern about the veteran and the presence of an additional support other than the support person, to the point where some have been able to re-engage in additional external activities independently of the veteran.

Many support persons commented on the imposition and preparation that the dog requires before being able to leave the house to run simple errands or for a night out. The imposition is also compounded by the increased attention on veteran and support person due to the dog, and visibility of the assistance dog jacket. This suggests that giving greater consideration to the family dynamics and individual impact on each support person would be of benefit in future programs.

Social Support

The survey findings indicate that there is no statistically significant change in perceived positive or negative interactions and associations of the support person with the veteran or with other family/friend over the course of the Trial.

Interestingly however, qualitative feedback does not mirror this finding, with many support persons indicating that their relationship with the veteran has improved through increased conversation and connection, increased attendance at social and family outings and shared mental and physical health benefits of exercising the dog.

“The program has helped reignite some of the things in the person I fell in love with and has been missing for many years”

Clinician experience

Feedback was sought from treating clinicians at three time points throughout the Trial. The first point of feedback related to the clinician's experience with the screening and recruitment processes for the Trial; and the subsequent points related to the clinician's experience and perceptions relating to the impacts of the Trial for the veteran and in relation to its use as an adjunct to therapy, based on knowledge of their veteran client's experiences and outcomes since being involved in the Trial. Although clinician response rates were low, the feedback provided is valuable and reflective of the experience of participating clinicians.

Recruitment and screening processes

- *Understanding of the Trial*

Overall, treating clinicians felt that they had been provided with a clear understanding of the Trial prior to referring potential veteran clients for assessment of acceptance into the Trial. One clinician suggested that the process could have been improved for them through the addition of a phone call or 'case conference' to discuss suitability of individual participants in more detail. It is noted however, that documentation provided to treating clinicians did provide contact details where clinicians could seek additional information or clarification if needed. Two clinicians indicated that they had utilised this option to seek additional information in relation to inclusion or exclusion criteria relevant to their particular client, and noted that their information needs had been effectively met through this.

- *Suitability of acceptance criteria*

Overall, treating clinicians felt that the inclusion and exclusion criteria required to be met by potential participants were appropriate. However, one clinician indicated that where a client had not yet received a formal PTSD diagnosis, but was engaged in counselling and displayed the relevant symptoms, that consideration should potentially be given to PTSD symptoms in relation to determining their eligibility for the program. However, another clinician noted that an appropriate approach of using case-by-case consideration had been given where uncertainty existed in relation to a particular criterion for one of their clients, reinforcing this avenue was available.

- *Ease of the screening and recruitment process*

All treating clinicians indicated that the process for screening of veterans in relation to the inclusion and exclusion criteria had been practical. Most clinicians indicated that they did not feel that any improvements were needed in relation to this process, however one clinician communicated that their veteran client had experienced frustration following acceptance into the Trial, due to being required to wait for a period before the training program commenced.

- *Perceptions towards the requirements of the Trial*

In relation to the time commitment required by veterans to participate in the Trial, on average, clinicians indicated that they considered it to be moderately demanding. However, most also indicated that they felt the demand was appropriate and also linked with likely positive outcomes and impacts. Suggestions as to why the required time commitment was appropriate included that:

- Time is needed to build a relationship with their dog;
- Time would be needed to achieve the required level of success and training outcomes relating to the assistance dog; and
- The project itself needs veterans to be committed for success.

Suggestions as to why the required time commitment was considered likely to be linked with positive outcomes and impacts included:

- Focussing on the assistance dog program would create demands in a positive way, providing positive distraction given that veterans are often very busy or pre-occupied with other issues;
- Working with a trained assistance dog, prior to receiving their own dog, would provide a challenging but appropriate opportunity to extend the veteran's emotional self-management in contexts in which they have previously learned or acquired a rapid reaction PTSD response such as anger or anxiety; and
- Engagement in the Trial and maintaining the required level of commitment well into the Trial will provide a sense of responsibility.

Only one clinician indicated that they had chosen not to refer a potential veteran to the Trial due to considering the program requirements to be too demanding for that individual. However, they indicated that there was no particular aspect that they could identify to be too demanding, but that at that early stage they felt it was too difficult to judge the actual impacts of the demand, and as a result, they had 'selectively chosen' veterans due to the uncertainty.

In considering any challenges encountered when referring veterans for consideration in the Trial, most indicated that they had not experienced any challenges. One clinician indicated that one of their veteran clients had expressed concern about the time commitment and another clinician noted that some potential veteran clients had been hesitant to be referred as they already owned a pet dog or cat and were reluctant to have a second dog.

Overall, the feedback received from treating clinicians indicated that they had found the selection and recruitment criteria and processes to be effective, with no major need for change or improvement identified.

Experience and impacts of the Trial

- *Clinician relationship with the veteran*

While the majority of veterans continued to be engaged in therapy with a clinician (either their original referrer or a new clinician), two had ceased therapy. For one of these, cessation of treatment had been indicated to have been based on decreased need for therapy due to improvement in mental health and PTSD symptoms (the other reason was not provided).

The average frequency of treatment sessions varied from weekly to monthly, depending on the individual needs of the veteran. An increase in sessions to weekly was noted to have occurred for two veteran clients at the time of dog handover to assist them with the change in lifestyle. Another had reduced their frequency of therapy to monthly since working with their own assistance dog. Other veteran clients were noted to have variable and changed frequency due to impacts of COVID-19, hospital admission to address various health concerns, and considerable stressors or events occurring in their personal life.

- *Program perceptions*

In considering their view of the assistance dogs program as compared to the point of referral, two clinicians indicated that their view had changed, and two indicated that it had remained the same. Feedback indicated that more positive outcomes had resulted than had been anticipated in relation to the program, including:

- In one case, the program had worked alongside the clinical therapeutic interventions (for example, with the veteran being trained to mediate with the dog for emotional regulation);
- The program assisted veterans to be more confident in public surroundings and in social situations;
- A veteran, who had spent a lot of time at home alone recovering from illness, had really looked forward to having their dog for support and to enrich their life;
- The program was much more detailed and considerate of the family unit; and
- There was more support from dog trainers and program staff in ensuring sound fit between dog and client.

Treating clinicians indicated that the level of contact from the training provider during the training program had been appropriate and helpful, however some indicated that an increase in coordinated contact would be beneficial to better link therapeutic interventions with assistance dog activities and goals.

Based on knowledge of the program, once treating clinicians had observed and experienced the impacts for their veteran clients, all indicated that the program is, or has the potential to be, of benefit as an adjunct to therapy for veterans with PTSD. It was reported that the dog training program has assisted veterans to interact in social situations, developing their confidence and enhancing the trauma therapy provided by the clinician. The majority of clinicians indicated that they would consider recommending other veterans with PTSD to similar programs in the future. Of those that indicated that they would refer, their reasons included that:

- The Trial has shown that the veterans have derived major benefits with building confidence and reducing emotional dysregulation;
 - The program has notably improved psychological outcomes; and
 - The program assists veterans to operate at their optimal level by gaining and building confidence through positive activities with the dog.
- *Impacts of the assistance dog*
 - *Impact on veteran's life overall* – all treating clinicians indicated that inclusion of an assistance dog as an adjunct to PTSD therapy has been beneficial on the veteran's life overall. Reasons for this included:
 - The training period has been useful for building attachment between dog and veteran; this attachment process has been pivotal with building confidence with social interactions especially in terms of experienced trauma and a usual operating mode of extreme avoidance of social relationships and crowded public places;
 - The veteran has become attached to the dog as they have spent a lot of time at home on their own while the spouse worked part time; the veteran has built up tolerance of open spaces and public transport while using the dog;
 - It has improved the veteran's emotional state and they have enjoyed the dog walks which have helped their physical recovery following hospital admissions;
 - The dog has been an enjoyable companion during periods of loneliness and during recovery from surgery;
 - Improved mood and a reduction in depression;
 - Improved veterans' self-esteem and confidence as well as reduced their anxiety;
 - Increased confidence with social interaction with people;

- Use of the dog to help regulate hypervigilance and anxiety, especially in public places;
 - Reduction in overall arousal and better able to regulate / switch focus /de-escalate by interaction with their assistance dog; feeling more grounded overall in this context; and
 - The veteran seemed more willing to leave the house and engage in some exposure activities with the dog.
- *Mental health and/or PTSD symptoms* – treating clinicians have noted a remarkable improvement in the mental health and/or PTSD symptoms for the majority of veterans. Observations included:
 - Reduction in anxiety;
 - Reduction in depression;
 - Reduction in nightmares and flashbacks;
 - Improved confidence;
 - Assisted in significantly improved psychological outcomes for multiple veterans as evidenced in the DASS 21 and AUDIT scores;
 - Development of emotion regulation skills and improved family relationships; and
 - Through attachment to the dog, caring for it and discussing it with other veterans, improvement in feeling much happier and a greater sense of wellbeing.
- *Change in medication or treatment regime* – although some of the veteran clients were indicated to have had a change in their medication or treatment regime since becoming involved in the Trial, there was a mix of this being related to the program or to external events. For two veterans, their change was reported considered to specifically relate to their involvement in the assistance dog program:
 - Cessation of treatment due to improved mental health and PTSD symptoms; and
 - Due to an issue with their first assistance dog, the veteran needed to receive a replacement assistance dog; there was a period where this veteran was without an assistance dog and they were prescribed more medication by their treating practitioner to cope with stress during this time; the veteran uses less medication when they have the support of their dog.

Other veterans were indicated to have had a change in treatment regime to more effectively control trauma symptoms following personal events, such as a sudden grief experience or to treat a chronic physical illness.

- *Change in social activity* – treating clinicians have noted improvement in the amount of social activity engaged in by veterans. Observations included:
 - Increased attendance at RSL and veterans’ events;
 - Increased participation in social outings;
 - Increased use of public transport;
 - Increased participation in family events and outings;
 - Building more friendships;
 - Attending more regular exercise classes;
 - Increased social circle of friends, engaging with a veteran’s sailing group and participating in more themselves lunches and dinners with their social network; however, during the COVID-19 restrictions this activity did not occur and the dog walks were of great comfort in the daily routine; and

- The veteran appeared more willing to engage in social activity with the assistance dog; once the dog was not there, the veteran tended to revert to old patterns of remaining at home unless accompanied by their spouse or mother to places (it is noted that this veteran needed to replace their original assistance dog and experienced a gap while waiting for second dog).
- *Change in accessing the community/public places* – treating clinicians reported improvement in veterans accessing the community and public places. Observations included:
 - Increased use of trains and trams to attend events, errands and appointments;
 - Increased visits to shopping centres;
 - Increased visits to movies;
 - Going to community events;
 - Going out to lunches and cafes; and
 - Increased visiting the RSL and participating in RSL commemorations.
- *Change in relationships with family and/or friends* – treating clinicians reported a improvement in reported change relating to relationships with the veteran’s family and/or friends for the majority of participants, including:
 - The veteran’s children now accompany them on dog walks and their grandchildren enjoy going on dog walks as well; the veteran reported that their relationships with family and friends have improved as they spend more time having dinners and lunches together; the veteran has reported less episodes of conflict in the family;
 - The veteran and their spouse have improved their communication and have less episodes of conflict;
 - Improved interactions with extended family where previous relationship has been difficult;
 - Less conflict with immediate family and children;
 - Improvement in friendships; and
 - Increased contact with people (although COVID-19 restrictions have hampered this).
- *Change in use of alcohol or other non-prescription drug use* – treating clinicians indicated that several veterans had decreased the level of alcohol or other non-prescription drug use.
- *Benefit to those providing support to the veteran* – treating clinicians familiar with their veteran client’s family and support relationships indicated that inclusion of the assistance dog has been highly beneficial for those providing support to the veteran, such as their spouse, children and friends. No clinicians indicated that it had not been beneficial, however, several felt that they were unable to comment in relation to this. Observations relating to the benefits included:
 - The family members experience increased positive feelings about having the dog;
 - The family members have enjoyed going for walks with the dog and being noticed by members of the public;
 - Spouses, children and grandchildren all report enjoying the dog and including the dog in family activities;
 - Working as a team to support the dog;

- A renewed positive sense of purpose with the dog included in outings and events;
 - Improved experiences with grandchildren; and
 - The veteran is able to access the community themselves and ultimately is able to spend time by themselves with an assistance dog; this provides much respite to family/supports.
- *Integration with therapy approach*

Treating clinicians indicated that the use of an assistance dog as an adjunct to therapy is considered to be beneficial. However, additional information or training would assist clinicians to better understand and utilise dogs in therapy. Suggestions relating to how to improve this included:

- A comprehensive training program and manual for clinicians linked to stages of the training;
- Programs and written resources that demonstrate how dogs are used in therapy;
- Guidance on how the dog may be used as a specific support to achieve therapy outcomes;
- Upfront clarity on the role of the assistance dog in the veteran’s life, specifically with regard to the range of support that the dog can offer (such as waking the client from nightmares, sensing early anxiety); and
- Occasional emails to remind or provide updates on developments.

In relation to their own experience with the assistance dogs training program, treating clinicians provided suggestions on ways that they felt the training program could be integrated with the therapy approach for veterans with PTSD, to increase the benefit of the program as an adjunct to therapy. This also aligned with veteran feedback in relation to seeing the importance of both program and therapy working together. The main focus of suggestions from clinicians was that there needs to be closer alignment between the training program and therapeutic interventions and goals, for example:

“I still continue to see my clinician and the dog is the missing piece of the jigsaw to my treatment”

- The dog training program needs to be working more closely with the therapist so that tasks that promote emotion regulation can be identified for the trainer who is handling the dog;
- The dog training program needs to run in conjunction with the therapeutic interventions being provided;
- It is a hard job to make one lifestyle change to improve mood or trauma symptoms, so the clinical and dog training interventions need to be more systematically aligned to facilitate planning of clinical goals for lifestyle change to align with the dog training program as well as plan additional support for the veterans; and
- An early meeting with the client, treating clinician and program clinician to share therapy goals so that the treating clinician may have early awareness of how the dog may work to support therapy goals.

- *Assistance dog attendance at therapy sessions*

Feedback was received relating to only one veteran attending therapy sessions with their dog in attendance. For this veteran, the clinician indicated that they had appeared more confident and presented as less anxious with their dog accompanying them. It was observed that the relationship between the veteran and their dog was effective in supporting the veteran during discussions of traumatic events.

“The veteran-dog relationship appears to be effective when talking about traumatic events as they stroke the dog and the dog sits closely beside them. The veteran presents as less anxious”

The clinician indicated that there were no issues encountered when the dog attended their premises, noting that they have a policy written up in the waiting room (relating to assistance dogs attending the premises) and have a mat and drinking bowl available for the dog to use.

Overall, the assistance dogs program and its potential benefit as an adjunct to therapy has been well received by treating clinicians based on their experience and observations relating to their veteran clients.

“This Trial has showed me that veterans have derived major benefits with building confidence and reducing emotional dysregulation”

Although feedback has been received from a small number of treating clinicians, it is clear that they are seeing substantial benefits to veteran participants in relation to PTSD symptoms, overall mental health and extended impacts such as social interactions, interpersonal relationships and access to community. Although there is a clear perceived benefit as to the utilisation of an assistance dogs program as an adjunct to a

therapy program, there is also an identified longer-term need for resources and structures to be developed which will more effectively align the two programs for the benefit of therapeutic outcomes and to provide education to clinicians to improve their understanding of the potential benefits and impact of such a program.

Assessment of veteran and assistance dog teams

Independent assessments of veteran and assistance dog teams demonstrates that the welfare and training of the dogs has been delivered and maintained to the highest standard and in line with Assistance Dogs International standards. Importantly, these assessments focussed on both the veteran and the dog to ensure the bond and welfare of the dog is cognisant for all participants.

Assessments were conducted with the veteran, assistance dog and trainer present. Each veteran and dog were assessed against public access criterion as outlined in the Queensland Government Guide, Hearing and Assistance Dogs Public Access Test (PAT), with additional general welfare and veteran impact feedback.

Assessments of the dogs indicated a positive relationship between veteran and assistance dog, as well as glowing report about the presentation, welfare and happiness of the dog.

Program management

The managers and trainers overseeing and delivering the program have reported an overall positive response from veterans and support persons throughout the Trial. The training of veteran and dog progressed in line with the program’s proposed model, with adjustments made to adapt to COVID-19 restrictions and lockdowns in Melbourne and across Australia. The continuation of the program throughout this period has been positive for both veteran and assistance dog.

The following challenges and considerations for future application of the program to veterans were highlighted by program managers and trainers:

- More in-depth screening of older veterans' health and physical abilities
- Monitoring and strategies for management of trainer/veteran dependency
- Introduction of a webinar prior to referral, for referring clinicians and veterans, to provide them with greater insight and understanding of the program
- Consideration of a trial training period or short course prior to commencement of the program; a trial period could help veterans and the program deliverers get to know each other and work out whether it is going to work and agree on whether to proceed
- Awareness and management of dog welfare and avenues for the assistance dog to have a respite option to allow the dog to have a rest or short break from the veteran
- Ongoing support is critical to both veteran and dog as behaviours and habits change within the veteran's environment; where changes have occurred, the dog must be "reset" to a state to pass the PAT; veterans tend to become nervous about PAT reaccreditation and also require support in relation to this.

Conclusion

The evaluation has found that the Trial has successfully achieved the objectives of determining the clinical utility of using specifically-trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population, determining the benefits of these assistance dogs in decreasing related support person burden, and enabling program and policy insights to ensure that the DVA Psychiatric Assistance Dog (PAD) Program can be positioned to provide evidence-based care.

The Trial has demonstrated that the training program and the assistance dog have provided an overall positive impact for veterans in relation to both PTSD symptomology and treatment, and broader personal gains. It has also shown that while limited reduction in support person burden has been found, positive impacts were also experienced. These impacts have also been accompanied with a number of challenges.

Findings as they relate to the key evaluation questions are summarised below.

1. Does evidence support the clinical utility of using specifically-trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population?

Data collected both qualitatively and through survey tools indicates that the application of an assistance dogs program has a real and positive impact on a veteran's PTSD symptomology and on many other aspects of their lives and overall mental health. In addition, the findings indicated that a program which utilises specifically trained assistance dogs has potential for use as an adjunct to evidence-based treatment of PTSD in a veteran population. In evaluating the extent of the effectiveness of this however, the extent to which this was possible was limited as the training program did not incorporate structured or regular review and communication between the training provider and treating clinician. It is considered that the program would have benefited from greater integration of goal setting and training activities with the therapeutic approach.

Based on statistically significant and qualitative findings, the benefits observed for veteran participants include:

- Reduction in PTSD symptom severity
- Decrease in social isolation
- Decrease in anger
- Decrease in anxiety and hypervigilance
- Decrease in fatigue
- Improved participation in social roles and activities
- Improved sleep quality and reduction in sleep disturbances
- Improvement in communication and relationships with family and others
- Increased confidence and independence in using public transport and accessing community and social activities.

Benefits are consistent with several international studies cited earlier in this report, where veterans have demonstrated a reduction in PTSD symptom severity following receipt of their assistance dog, but where their symptoms continue to remain above the clinical cut-off for PTSD. Similarly, the findings reflect those of international studies in relation to aspects such as reduction in depression and anxiety, and improvements relating to sleep quality and social isolation.

Treating clinicians have indicated that they see great potential benefit to using an assistance dog program as an adjunct to their treatment programs with veterans with PTSD. They reported observing notable improvements in psychological outcomes of those who have received their assistance dog, as well as positive impacts on social interactions, interpersonal and family relationships, and community

access. However, clinicians also indicated a more developed approach to linking an assistance dog program with therapy will be needed to realise maximum benefit.

In considering the program's impacts on areas such as veterans' ability to participate in social roles and activities or pain interference, it is noted that these changes may have been influenced by factors unrelated to the assistance dog or Trial involvement, such as COVID-19 restrictions and impacts and extensive periods of lockdown; or ill health, injury and surgery (of the veteran or their family members). It is also noted that these findings are based on evaluation of one specific training program and these findings may not be mirrored to the same extent through other training program approaches. More reliable or conclusive trends which accounted for these external influences would require a much larger sample size, a model where these factors were known or anticipated, and/or a control group available for comparison. Notwithstanding these limitations, the current evaluation has demonstrated clear trends which indicate clinical utility of specifically trained assistance dogs as an adjunct to evidence-based treatment for PTSD in a veteran population, and this would warrant further investigation with a larger sample size and control group, across a range of approaches of training programs.

- 2. As a result of participating in the Trial, were there any unintended positive or negative impacts on:**
- a. Veterans**
 - b. Veterans' families and carers**
 - c. Assistance dogs**

The Trial has shown to be beneficial to veterans throughout both the initial training phase and following delivery of the assistance dog.

With the training and delivery of the assistance dogs deemed an essential service during the COVID-19 lock-down periods in Victoria and Australia, this allowed the training to continue with minimal disruptions. This continuity presented itself as an unintended benefit reported by veteran and support person participants as it has assisted in minimising the potential impacts of the self-isolation and stay-at-home restrictions enforced in Melbourne during the pandemic. Interestingly, many of the benefits have been observed despite research reports indicating significant and adverse mental health impacts of COVID-19 on many people in the general population. In the absence of a similar PTSD control group and given the small sample size of the current study, however, this observation is one of interest only and its significance cannot be indicated other than through casual observation.

Key to the positive impacts observed from the early stages of the training program was the structure and delivery of training provided to the veterans. Training provided veterans with confidence and was highlighted to have been a positive experience with the interactions with both trainers and the provider's dogs.

Overall, veteran and support person participants did not report any negative impacts associated with their involvement in the pre-delivery training program phase. However, some participants experienced a degree of challenge while transitioning to having the assistance dog living with them, particularly where existing household and family responsibilities were high, or where the dog displayed challenging behaviours (both in and out of the home). In particular, many support persons indicated feeling increased burden during the transition phase due to their being required to take on additional care responsibilities associated with the dog. These challenges, however, were noted to be an ongoing area of intervention and training by the provider to work to resolve the concerns and to support the veteran and support person through and beyond the transition process. Some support persons indicated that if they had been more involved in the pre-delivery training that they may have felt better equipped to address some of these challenges.

There were no identified unintended positive or negative impacts on the assistance dogs themselves during the Trial. Although in two cases the first assistance dog assigned to the veterans needed to be replaced, there were no ongoing negative impacts to the dogs or their welfare. These dogs were found to be an unsuitable match for these veterans due to household factors or specific veteran need which could not be accommodated by the existing dog, and were re-homed to suitable environments following assessment and relevant re-training by the training provider. In selecting a replacement dog, the training provider considered the reasons for the original dog's unsuitability and factored this into their selection and training process for the subsequent dog, including selection of a different breed in one case to provide a temperament more suited to the veteran's needs. Both of the replacement dogs were found to be suitable and no further issues had been identified in relation to either of the dogs.

3. *Is there a decrease in related support person burden as a result of specifically trained assistance dogs used by veterans with PTSD?*

Results indicate that there has been little change on the overall burden perceived by the support person in relation to the care they provide for the veteran, based on outcomes of survey findings. However, qualitative results indicate that there has been positive improvement in the overall perceived carer burden for some support persons due to the veteran becoming more confident to attend public outings on their own (e.g., through independent use of public transport with their assistance dog, going to shops and other activities), or through the support person feeling more comfortable about leaving the veteran at home alone, knowing the assistance dog would provide support and comfort if required in their absence.

It is important to recognise the change in household dynamics that extended COVID-19 lockdowns have had on both veteran and support person participants, as well as the indications that the introduction of the dog has not come without challenges to the support person.

Where the support person lived in the same household as the veteran, the level of support person burden arising due to the presence of the assistance dog, was found to have increased, particularly during the transition period where additional care responsibilities for a young dog were required. For many support persons this burden reduced the longer the dog lived in the home, however, it is noted that some support persons continued to experience challenges relating to behaviours of the dog and associated increased burden, that were not yet resolved at conclusion of the Trial (but continued to be addressed through support of the training provider).

4. *What are the key considerations and adaptations to the model required for input into policy and program development that would enhance the current DVA Psychiatric Assistance Dog Program?*

To ensure the maximisation of benefits to veterans and the successful implementation of the ongoing assistance dog program, ongoing awareness of, and education in relation to, the utility of an assistance dog program as an adjunct to therapy, for clinicians and veterans, would be beneficial. Key findings of the current evaluation indicated:

- *Awareness and education*
 - The benefit of increased awareness of and understanding of potential benefits of an assistance dog for veterans with PTSD, to ensure veterans and support persons can make an informed decision as to whether this option is appropriate for their circumstances.
 - The importance of veterans having the option of an initial self-referral mechanism into the program with subsequent engagement of and approval by their clinician, as well as maintaining the clinician-initiated referral mechanism; the benefit of increased

awareness of the assistance dog program for clinicians and veterans followed increased reporting by DVA and mainstream media sources.

- The need for education, through mainstream media sources, to facilitate increased awareness and acceptance of the use of assistance dogs by veterans with PTSD to reduce challenges experienced in public access settings.
- *Understanding of the program*
 - Further development of program information for all stakeholders, veteran, support person and clinicians is required to ensure clear understanding of the intent of the program, the commitment required by all stakeholders and potential impact on the veteran's life, both positive and negative. It is important that the information presented clearly articulates the benefits of the program without overstating the potential benefit of an assistance dog, to assist in managing the veteran's expectations of the impacts that can be achieved. It is also important that real life examples and individual experiences of veterans who have received an assistance dog, including both positive outcomes and challenges, are included in this information.
- *Adjunct to therapy*
 - There is a clear need for development of resources to assist clinicians to better understand the benefits of assistance dogs as an adjunct to current evidence-based therapy approaches
 - Better alignment of the assistance dog program with the clinical therapy approach is needed, to ensure therapeutic goals and activities being implemented by the clinician can be supported by the assistance dog program
- *Effective training*
 - The experience of the training provider, not only in providing reputedly and effectively trained dogs, but also in relation to their understanding of PTSD and mental health assistance, appears to have been critical to the success of the Trial. The effectiveness of this could be increased through building of a closer, more regular communication with the treating clinician, as relevant to aligning the therapeutic approach and working towards individual veteran goals.
 - Many veteran participants commented that they have experienced frustration at the behaviour of other assistance dogs in public places, trained by other providers, who they perceive to not have addressed the basic behavioural training needs. The current and emerging assistance dog industry is generally self-regulated with organisations conducting their own public access testing and accreditation. The increased awareness, positive impact and public funding of assistance dogs has the potential to lead to greater demand and opportunity for various training organisations to provide these programs. With this comes increased uncertainty of the quality of the training of both dog and veteran to have the complex skills necessary to be an assistance dog for a person with PTSD. It is considered therefore that to ensure the minimum acceptable standards are maintained, that independent oversight or audit of all training providers would be beneficial to achieving this.
 - Training experienced by those with more complex home environments or for veteran's with more unique needs highlighted that effective training cannot be delivered using a one-size-fits-all approach and must be tailored to adapt to each individual's situation. This can include a wide range of considerations such as a complex family environment (for example, young children or others with disability care needs) to a veteran living independently.

- This evaluation focussed on the impact of training and delivery of the assistance dog for veterans with PTSD using only one training model. The model used immersed the veteran (and support person) in 12-18 months of training to prepare, match and support both the veteran and the dog to ensure a positive outcome. Although this process was initially daunting for many veterans and support persons, on reflection, all recognised the importance of the foundation approach, including the duration, used by the training provider and view this as a minimum standard. In addition, the importance of the pre-delivery training phase was highlighted by both qualitative and survey data indicating that veterans experienced improvements in many areas of their mental health, routines and confidence during the initial training period prior to receipt of their own assistance dog.
- Training participants reported that they experienced ongoing benefits from the in-person, regular contact with the trainers throughout the program, as well as the time available from trainers to support them at their pace and in line with their level of need. However, where in-person training was limited due to change in geographical location of the veteran, combined with COVID-19 border closures, these benefits were noted to have been felt to have reduced and perceived to have impacted the training progress of the veteran and assistance dog towards attaining desired goals. As experienced by veterans who received training and support outside of the metropolitan areas or interstate, the level and access to training and the dogs' role as an assistance dog diminished and the instances of behavioural issues with the dog increased. It is evident that the successful implementation of the dogs within this Trial is as a result of the foundation training provided to both veteran and dog. Many veterans highlighted the importance of the training provided to them to understand how to manage the dog and their role in the dog's development. It is therefore considered critically important that providers have the capacity to deliver the service and to support the veteran in-person, within their local environment/community.
- Following the transition phase of the assistance dog living with the veteran, many veterans reported feeling more comfortable with a reduced frequency of contact with the trainers. However, most reported that they would benefit from periodic access to a trainer on an ongoing basis to ensure that they were able to maintain the training and behaviours required for their assistance dog (to meet their goals and maintain competency of the dog, and meet ongoing public access test obligations). It is considered important to ensure that veterans have access to training support and advice when needed to address any challenges that arise with their assistance dog, whether this be a need for quick advice by telephone, or a more intensive training refresher session in-person to rectify more serious concerns or behaviours.

Recommendations

1. **Adjunct to therapy** – it is recommended that:
 - a. Broader implementation of an assistance dog program continue to be made available to veterans with PTSD, with clear guidelines and support mechanisms utilised in the Trial to be maintained.
 - b. Resources be developed to assist clinicians to better understand the benefits of assistance dogs as an adjunct to current evidence-based therapy approaches.
 - c. Processes be developed to better align assistance dog programs with the clinical therapy approach for each individual veteran.
2. **Program information** – it is recommended that:
 - a. Future implementation requires further development of program information for all stakeholders, veteran, support person and clinicians, including clear outline of the intent of the program, the commitment required by all stakeholders and potential impact on the veteran's and support person's lives, both positive and negative.
 - b. Information resources be developed, specifically to inform each individual stakeholder (i.e., veteran and support person separately), on what to expect and what the program will involve, with consideration given to use of various approaches such as webinars or use of mentors already experienced in the program.
3. **Training Providers** – it is recommended that:
 - a. DVA develop a credentialling process to ensure that only training providers with experience in PTSD and mental health assistance dog training are contracted to deliver the Psychiatric Assistance Dogs Program.
 - b. Providers must have the capacity to deliver the service and to support the veteran in-person, within their local environment/community.
4. **Ongoing Support Mechanism** – it is recommended that:
 - a. A sustainable ongoing support mechanism be developed to ensure veterans have access to training provider advice and support relating to maintaining their assistance dog's competency and behaviours as needed for the life of their assistance dog.
5. **Peripheral Support Services** – it is recommended that:
 - a. A centralised case management model be delivered by DVA, or representatives of DVA, to support veterans and support persons and guide the assistance dog program provider, where required, in relation to issues impacting the well-being of the veteran that are beyond the scope of the training provider's responsibility.
6. **Quality Assurance** – it is recommended that:
 - a. An external auditing/assessment framework be developed and implemented by, or on behalf of DVA, to ensure providers engaged to deliver assistance dogs training and services maintain the minimum standards outlined by Assistance Dogs International.
7. **Training Models** – it is recommended that:
 - a. As the current evaluation involved only one training model, an evaluation be undertaken of the impact of other training models currently in use in the DVA Psychiatric Assistance Dog Program.

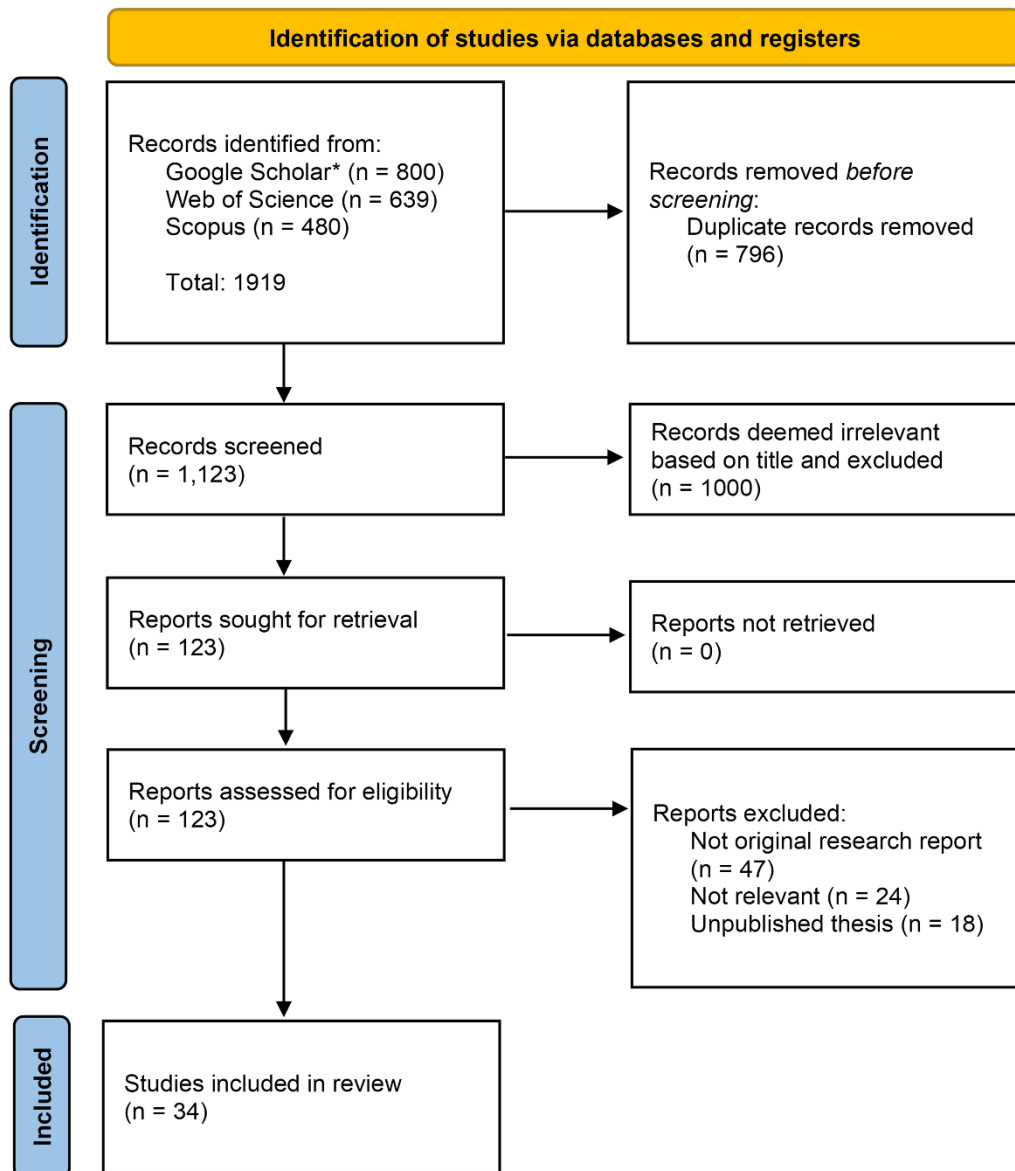
Appendices

Appendix A: Literature review - Methodology

A systematic literature review was undertaken using PRISMA guidelines (Moher et al., 2009). Google Scholar, Web of Science, and Scopus databases were used to identify relevant publications on 27 and 28 July 2021. The following search terms were used for Google Scholar and Scopus: veteran assistance dog, veteran service dog, veteran assistance animal, veteran service animal, veteran dog PTSD, veteran animal PTSD, veteran dog trauma, veteran animal trauma. For Web of Science, it was necessary to use quotation marks to increase the relevance of the results. The search terms used were veteran 'assistance dog', veteran 'service dog', veteran 'assistance animal', veteran 'service animal', veteran dog PTSD, veteran 'animal' PTSD, veteran dog trauma, veteran 'animal' trauma.

After the initial search, titles were screened for relevance. Because Google Scholar typically provides hundreds of results for each search, only the first 100 results per search term (i.e., the first 10 pages of results, which had 10 results per page) were screened for this database. Reports that were considered potentially relevant based on the title were retrieved and assessed for inclusion in the review. Studies were included if they met the following criteria: published in an English-language peer-reviewed academic journal or edited book; original research report; sample comprised veterans with PTSD and/or their partners; and study evaluated the impact of assistance animals. Unpublished theses, literature reviews, research reports that were published outside of peer-reviewed journals (e.g., on government websites), populations other than veterans with PTSD, and animals other than assistance animals (e.g., therapy animals, companion animals) were excluded.

Studies were not excluded on the basis of research design, so publications ranging from case studies to large-scale longitudinal trials employing objective measures were included. Some assistance dog training organisations provide fully trained and certified assistance dogs to veterans, while others adopt an 'owner-trainer' process in which the client selects and trains their own assistance dog, under the guidance of the organisation. Studies employing both approaches were included because, even in the owner-training scenario, the assistance dog was intended to continue providing support for the veteran after the training process concluded. Studies in which the veteran trained an assistance dog for someone else were excluded. A summary of the search and screening process is shown in the following figure (Page et al., 2021).



*First 10 pages of results for each search term from Google Scholar, totalling 100 results per search term (10 pages with 10 results per page)

Research quality assessment

To evaluate the scientific rigour of the evidence base for assistance dogs supporting veterans with PTSD, each study was subjected to a risk of bias analysis using Cochrane Collaboration’s tool for assessing risk of bias (Higgins et al., 2011).

The results of the analysis using Cochrane Collaboration’s tool for assessing risk of bias (Higgins et al., 2011) is available in the following table. It is clear that the risks of selection, performance, and detection bias were high in all cases. The risk of attrition bias varied between studies, while nearly all studies reported all outcome measures, making the risk of reporting bias low overall.

Because it is not feasible to avoid selection bias, performance bias, and detection bias in assistance dog research, the shading is in light red for those columns, rather than bright red, as in the following columns.

| Citation | Selection bias – random allocation and allocation concealment | Performance bias – blinding participants and personnel | Detection bias – blinded outcome assessment | Attrition bias – incomplete data | Reporting bias - Selective reporting |
|---------------------------------|---|--|---|----------------------------------|--------------------------------------|
| Bergen-Cico et al 2018 | - | - | - | ? | + |
| Crowe, Nguyen et al 2018 | - | - | - | + | + |
| Crowe, Sanchez et al 2018 | - | - | - | + | + |
| Galsgaard & Eskelund 2020 | - | - | - | - | ? |
| Goldblatt 2019 | - | - | - | ? | - |
| Husband et al 2020 | - | - | - | + | + |
| Jensen et al 2021 | - | - | - | ? | + |
| Kloep et al 2017 | - | - | - | + | + |
| Krause-Parello & Morales 2018 | - | - | - | + | + |
| LaFollette et al 2019 | - | - | - | + | + |
| Lessard et al 2020. | - | - | - | - | + |
| Lessard et al 2018 | - | - | - | + | + |
| McCall et al 2020 | - | - | - | ? | + |
| McLaughlin & Hamilton 2019 | - | - | - | + | + |
| Nieforth, Craig, et al 2021 | - | - | - | + | + |
| Nieforth, Rodriguez, et al 2021 | - | - | - | + | + |
| O'Haire & Rodriguez 2018 | - | - | - | ? | + |
| Rodriguez et al 2020 | - | - | - | + | + |
| Rodriguez et al 2021 | - | - | - | + | + |
| Rodriguez et al 2018 | - | - | - | ? | + |
| Scotland-Coogan et al 2020 | - | - | - | - | + |
| Scotland-Coogan 2019a | - | - | - | + | + |
| Scotland-Coogan 2019b | - | - | - | + | + |
| Stern et al 2013 | - | - | - | + | + |

| | | | | | |
|--|---|---|---|---|---|
| Taylor et al 2013 | - | - | - | + | + |
| Vincent, Belleville, Gagnon, Auger et al 2017 | - | - | - | + | ? |
| Vincent et al 2019 | - | - | - | - | + |
| Vincent, Belleville, Gagnon, Dumont et al 2017 | - | - | - | - | + |
| Whitworth et al 2019 | - | - | - | - | + |
| Whitworth et al 2020 | - | - | - | + | + |
| Williamson et al. 2021 | - | - | - | + | ? |
| Yarborough et al, 2017 | - | - | - | + | + |
| Yarborough et al, 2018. | - | - | - | ? | + |
| Yount et al, 2019 | - | - | - | - | - |

The Cochrane Collaboration’s tool is designed for use in randomised trials, which are ideally double-blinded and placebo-controlled. However, it is impossible to give someone a highly trained assistance dog without them knowing about it, so blinding in this context is not feasible. It is theoretically possible to give someone a ‘placebo’ dog, such as an emotional support animal or untrained companion animal. This was attempted in a randomised controlled trial (RCT) in the US (Richerson et al., 2020), which used emotional support animals. It was not included in the current review because it was not published in a peer-reviewed journal. Other researchers have not attempted similar random assignment, perhaps because it is ethically questionable to provide a person who needs an assistance animal, with an animal that is not sufficiently well-trained to offer them the required disability support. Indeed, the attrition rates in the US RCT were almost twice as high for the emotional support animal group as the assistance animal group (Richerson et al., 2020), and the most common reason for withdrawing prior to receiving the dog was an unwillingness to accept being randomised into the emotional support dog group. It is also unethical from an animal welfare standpoint for a person to be given an unwanted animal or an animal they are not able to care for appropriately. Therefore, some elements of risk in the Cochrane Collaboration tool, especially randomisation of groups and blinding of participants, cannot be avoided in assistance dog research.

Risk of bias tools for non-randomised trials exist, but they lack convergent validity, with different tools offering very different assessments of risk for the same study (Losilla et al., 2018). With that in mind, we relied on the Cochrane Collaboration’s tool despite its limitations for assessing the quality of research in this field. It has been cited in over 20,000 academic publications, indicating that it is well-regarded in the scientific community. Nonetheless, we recommend interpreting our analysis with caution, acknowledging that there is an inherent risk of bias in this field that cannot be surmounted. Even within those constraints, however, rigorous research should still be possible if the studies can reduce the remaining risks highlighted in the Cochrane Collaboration’s tool.

Appendix B: Summary of the DSM-5 diagnostic criteria that an individual must meet for formal diagnosis of PTSD

- **Criterion A (one required):**

The person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, in the following way(s):

 - Direct exposure
 - Witnessing the trauma
 - Learning that a relative or close friend was exposed to a trauma
 - Indirect exposure to aversive details of the trauma, usually in the course of professional duties (e.g., first responders, medics)
- **Criterion B (one required):**

The traumatic event is persistently re-experienced, in the following way(s):

 - Unwanted upsetting memories
 - Nightmares
 - Flashbacks
 - Emotional distress after exposure to traumatic reminders
 - Physical reactivity after exposure to traumatic reminders
- **Criterion C (one required):**

Avoidance of trauma-related stimuli after the trauma, in the following way(s):

 - Trauma-related thoughts or feelings
 - Trauma-related reminders
- **Criterion D (one required):**

Negative thoughts or feelings that began or worsened after the trauma, in the following way(s):

 - Inability to recall key features of the trauma
 - Overly negative thoughts and assumptions about oneself or the world
 - Exaggerated blame of self or others for causing the trauma
 - Negative affect
 - Decreased interest in activities
 - Feeling isolated
 - Difficulty experiencing positive affect
- **Criterion E (one required):**

Trauma-related arousal and reactivity that began or worsened after the trauma, in the following way(s):

 - Irritability or aggression
 - Risky or destructive behaviour
 - Hypervigilance
 - Heightened startle reaction
 - Difficulty concentrating
 - Difficulty sleeping
- **Criterion F (required):**

Symptoms last for more than 1 month.
- **Criterion G (required):**

Symptoms create distress or functional impairment (e.g., social, occupational).
- **Criterion H (required):**

Symptoms are not due to medication, substance use, or other illness.
- **Two specifications:**
 - *Dissociative Specification:* In addition to meeting criteria for diagnosis, an individual experiences high levels of either of the following in reaction to trauma-related stimuli:

- Depersonalization. Experience of being an outside observer of or detached from oneself (e.g., feeling as if "this is not happening to me" or one were in a dream).
- Derealization. Experience of unreality, distance, or distortion (e.g., "things are not real").
- *Delayed Specification*: Full diagnostic criteria are not met until at least six months after the trauma(s), although onset of symptoms may occur immediately.

Appendix C: Statistical Analysis

A repeated-measures Analysis of Variance (ANOVA) was used for each of the survey measures. Where statistically significant differences were indicated, a post-hoc pairwise comparison using the Bonferroni correction was used to determine which of the time points significantly differed. The assumption of homogeneity-of-variance-of-differences was met for each of the repeated-measure ANOVA tests, indicating a reliable p-value. Statistical analysis findings are provided in the following table, with significance indicated by *.

| PTSD symptoms – PCL-5 |
|---|
| Repeated measures ANOVA: ($F_{(3,42)}=16.334$, $p<.001$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 49.06 and 35.22 respectively; $p = .008$)*○ Baseline to Post-2 delivery (M = 49.06 and 28.66 respectively; $p < .001$)*○ Pre-delivery to Post-1 delivery (M = 45.63 and 35.22 respectively; $p = .017$)*○ Pre-delivery to Post-2 delivery (M = 45.63 and 28.66 respectively; $p < .001$)* |
| PCL-5 subscales: |
| <i>Re-experiencing</i> Repeated measures ANOVA: ($F_{(3,45)}=15.577$, $p<.001$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 11.13 and 8.31 respectively; $p = .032$)*○ Baseline to Post-2 delivery (M = 11.13 and 6.57 respectively; $p < .001$)*○ Pre-delivery to Post-1 delivery (M = 9.94 and 8.31 respectively; $p = .165$)○ Pre-delivery to Post-2 delivery (M = 9.94 and 6.57 respectively; $p = .001$)* |
| <i>Avoidance</i> Repeated measures ANOVA: ($F_{(3,45)}=10.422$, $p<.001$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 5.44 and 3.56 respectively; $p = .038$)*○ Baseline to Post-2 delivery (M = 5.44 and 3.14 respectively; $p = .002$)*○ Pre-delivery to Post-1 delivery (M = 5.00 and 3.56 respectively; $p = .036$)*○ Pre-delivery to Post-2 delivery (M = 5.00 and 3.14 respectively; $p = .002$)* |
| <i>Negative alterations in cognition and mood</i> Repeated measures ANOVA: ($F_{(3,45)}=17.216$, $p<.001$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 18.25 and 13.38 respectively; $p = .023$)*○ Baseline to Post-2 delivery (M = 18.25 and 10.34 respectively; $p < .001$)*○ Pre-delivery to Post-1 delivery (M = 16.94 and 13.38 respectively; $p = .098$)○ Pre-delivery to Post-2 delivery (M = 16.94 and 10.34 respectively; $p < .001$)* |
| <i>Hyper-arousal</i> Repeated measures ANOVA: ($F_{(3,45)}=15.212$, $p<.001$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 14.25 and 9.97 respectively; $p = .032$)*○ Baseline to Post-2 delivery (M = 14.25 and 8.61 respectively; $p < .001$)*○ Pre-delivery to Post-1 delivery (M = 13.75 and 9.97 respectively; $p = .008$)*○ Pre-delivery to Post-2 delivery (M = 13.75 and 8.61 respectively; $p < .001$)* |
| Social isolation - PROMIS short-form – social isolation 6a |
| Repeated measures ANOVA: ($F_{(3,42)}=6.459$, $p=.001$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 19.33 and 17.63 respectively; $p = .587$)○ Baseline to Post-2 delivery (M = 19.33 and 15.67 respectively; $p = .047$)*○ Pre-delivery to Post-1 delivery (M = 20.00 and 17.63 respectively; $p = .177$)○ Pre-delivery to Post-2 delivery (M = 20.00 and 15.67 respectively; $p = .025$)* |
| Emotional distress – Anger - PROMIS short-form – emotional distress - anger 5a |
| Repeated measures ANOVA: ($F_{(3,42)}=5.688$, $p=.002$)* Post-hoc pairwise comparison using the Bonferroni correction: <ul style="list-style-type: none">○ Baseline to Post-1 delivery (M = 16.07 and 14.10 respectively; $p = .285$) |

- Baseline to Post-2 delivery (M = 16.07 and 12.73 respectively; p = .028)*
- Pre-delivery to Post-1 delivery (M = 16.07 and 14.10 respectively; p = .591)
- Pre-delivery to Post-2 delivery (M = 16.07 and 12.73 respectively; p = .071)

Anxiety - PROMIS-29 Profile v2.1

Repeated measures ANOVA: ($F_{(3,42)}=8.795$, $p<.001$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 12.47 and 10.40 respectively; p = .014)*
- Baseline to Post-2 delivery (M = 12.47 and 9.59 respectively; p < .001)*
- Pre-delivery to Post-1 delivery (M = 12.27 and 10.40 respectively; p = .303)
- Pre-delivery to Post-2 delivery (M = 12.27 and 9.59 respectively; p = .020)*

Fatigue - PROMIS-29 Profile v2.1

Repeated measures ANOVA: ($F_{(3,42)}=4.230$, $p=.011$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 14.00 and 12.33 respectively; p = .249)
- Baseline to Post-2 delivery (M = 14.00 and 11.35 respectively; p = .027)*
- Pre-delivery to Post-1 delivery (M = 13.60 and 12.33 respectively; p = .986)
- Pre-delivery to Post-2 delivery (M = 13.60 and 11.35 respectively; p = .097)

Ability to participate in social roles and activities - PROMIS-29 Profile v2.1

Repeated measures ANOVA: ($F_{(3,42)}=5.451$, $p=.003$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 13.87 and 11.97 respectively; p = .234)
- Baseline to Post-2 delivery (M = 13.87 and 11.21 respectively; p = .021)*
- Pre-delivery to Post-1 delivery (M = 13.73 and 11.97 respectively; p = .412)
- Pre-delivery to Post-2 delivery (M = 13.73 and 11.21 respectively; p = .071)

Sleep quality & Sleep disturbances - Pittsburgh Sleep Quality Index (PSQI)

Subjective sleep quality:

Repeated measures ANOVA: ($F_{(3,42)}=3.924$, $p=.015$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 2.27 and 1.67 respectively; p = .015)*
- Baseline to Post-2 delivery (M = 2.27 and 1.68 respectively; p = .017)*
- Pre-delivery to Post-1 delivery (M = 2.07 and 1.67 respectively; p = .986)
- Pre-delivery to Post-2 delivery (M = 2.07 and 1.68 respectively; p = .519)

Sleep latency:

Repeated measures ANOVA: ($F_{(3,42)}=2.593$, $p=.065$)

Sleep duration:

Repeated measures ANOVA: ($F_{(3,42)}=1.574$, $p=.210$)

Habitual sleep efficiency:

Repeated measures ANOVA: ($F_{(3,42)}=2.609$, $p=.064$)

Sleep disturbances:

Repeated measures ANOVA: ($F_{(3,42)}=4.808$, $p=.006$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 2.07 and 1.80 respectively; p = .243)
- Baseline to Post-2 delivery (M = 2.07 and 1.68 respectively; p = .025)*
- Pre-delivery to Post-1 delivery (M = 2.00 and 1.80 respectively; p = .495)
- Pre-delivery to Post-2 delivery (M = 2.00 and 1.68 respectively; p = .183)

Use of sleeping medication:

Repeated measures ANOVA: ($F_{(3,42)}=1.14$, $p=.342$)

Daytime dysfunction:

Repeated measures ANOVA: ($F_{(3,42)}=2.865$, $p=.048$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 1.80 and 1.80 respectively; p = 1.00)
- Baseline to Post-2 delivery (M = 1.80 and 1.45 respectively; p = .263)
- Pre-delivery to Post-1 delivery (M = 1.93 and 1.80 respectively; p = 1.00)
- Pre-delivery to Post-2 delivery (M = 1.93 and 1.45 respectively; p = .148)

Pain Interference - PROMIS-29 Profile v2.1

Repeated measures ANOVA: ($F_{(3,42)}=1.968$, $p=.133$)

Physical functioning - PROMIS-29 Profile v2.1

Repeated measures ANOVA: ($F_{(3,42)}=1.707$, $p=.180$)

Depression & Sadness - PROMIS-29 Profile v2.1

Repeated measures ANOVA: ($F_{(3,42)}=5.43$, $p=.003$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 11.80 and 9.97 respectively; $p = .259$)
- Baseline to Post-2 delivery (M = 11.80 and 9.52 respectively; $p = .051$)
- Pre-delivery to Post-1 delivery (M = 12.53 and 9.97 respectively; $p = .064$)
- Pre-delivery to Post-2 delivery (M = 12.53 and 9.52 respectively; $p = .079$)

General Self-Efficacy – General Self-Efficacy Scale

Repeated measures ANOVA: ($F_{(3,42)}=1.480$, $p=.244$)

Social Support – Schuster Social Support Scale

Veteran outcomes:

Supportive/positive interactions – support person
Repeated measures ANOVA: ($F_{(3,42)}=2.715$, $p=.057$)

Supportive/positive interactions – others
Repeated measures ANOVA: ($F_{(3,42)}=.703$, $p=.556$)

Negative interactions – support person
Repeated measures ANOVA: ($F_{(3,42)}=1.788$, $p=.164$)

Negative interactions – others
Repeated measures ANOVA: ($F_{(3,42)}=1.399$, $p=.256$)

Support person outcomes:

Supportive/positive interactions – veteran
Repeated measures ANOVA: ($F_{(3,42)}=.875$, $p=.462$)

Supportive/positive interactions – others
Repeated measures ANOVA: ($F_{(3,42)}=5.971$, $p=.005$)*

Post-hoc pairwise comparison using the Bonferroni correction:

- Baseline to Post-1 delivery (M = 5.53 and 4.57 respectively; $p = .014$)*
- Baseline to Post-2 delivery (M = 5.53 and 4.81 respectively; $p = .059$)
- Pre-delivery to Post-1 delivery (M = 4.60 and 4.57 respectively; $p = .100$)
- Pre-delivery to Post-2 delivery (M = 4.60 and 4.81 respectively; $p = 1.00$)

Negative interactions – veteran
Repeated measures ANOVA: ($F_{(3,42)}=.216$, $p=.826$)

Negative interactions – others
Repeated measures ANOVA: ($F_{(3,42)}=.197$, $p=.898$)

Support person burden – Carer Burden Scale

Repeated measures ANOVA: ($F_{(3,42)}=.521$, $p=.596$)

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