

## Supplementary material:

### Paper Characteristics (all noted papers, if not mentioned, relate to PTSD diagnosed veterans)

| Author                              | Aim                                                                            | Sample                                                      | Method                                                                                    | Location | Findings related to loneliness/<br>Social isolation within PTSD                                                                            |
|-------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Azevedo <i>et al</i> [3] (2016)     | To investigate the efficacy of a web-based skills building / health course.    | <i>n</i> = 40                                               | web-based skills building for rural women veterans.                                       | USA      | Addresses health disparities amongst minority veteran populations, Removes barriers to interaction.                                        |
| Bauer <i>et al</i> [4] (2021)       | To investigate the efficacy of a web-based skills building / health course.    | <i>n</i> = 80                                               | web-based skills building for rural male & female vets.                                   | USA      | Importance of emotional awareness and management, placing emphasis on relationship and interpersonal skills.                               |
| Beidel <i>et al</i> [5] (2016)      | To explore the suitability of virtual reality exposure and group intervention. | <i>n</i> = 122                                              | Intensive outpatient therapy with virtual exposure / group work.                          | USA      | Social functioning and reintegration are vital factors, as is social and Emotional rehabilitation.                                         |
| Beidel <i>et al</i> [6] (2017)      | To explore the suitability of virtual reality exposure and group intervention. | <i>n</i> = 179<br>Iraq / Afghan.                            | Intensive outpatient therapy with virtual exposure / group work.                          | USA      | A high priority is placed upon social reintegration.                                                                                       |
| Bensimon [7] (2008)                 | To investigate the suitability of drum therapy.                                | <i>n</i> = 9<br>aged 20-23                                  | Drum therapy for chronic PTSD.                                                            | Israel   | Group cohesion is a vital element. It is important to restore social relationships and to consider the loneliness v togetherness paradigm. |
| Bensimon [8] (2012)                 | To investigate the suitability of Group Music Therapy.                         | <i>n</i> = 9<br>aged 20-23                                  | Group Music Therapy for chronic PTSD.                                                     | Israel.  | Develops a sense of belonging and identity and improves interpersonal communication.                                                       |
| Bergen-Cico <i>et al</i> [9] (2018) | To explore the efficacy of PTSD dog ownership and bonding.                     | <i>n</i> = 60                                               | PTSD dog bonding. Dogs2Vets program.                                                      | USA      | Targets isolation, develops self-compassion and self-judgement.                                                                            |
| Bolman <i>et al</i> [10] (2019)     | To investigate the suitability of bonding with traumatised parrots.            | not stated.                                                 | Traumatized parrot bonding for PTSD.                                                      | USA      | Becoming well together through relationships of mutual care.                                                                               |
| Crowe <i>et al</i> [18] (2018)      | To investigate the suitability of PTSD dog ownership.                          | <i>n</i> = 9                                                | PTSD dog ownership. Paws+Stripes program. Focus groups.                                   | USA      | Targets isolation and develops a sense of reconnection. Improves social opportunities and develops a sense of worth and purpose.           |
| Cushing <i>et al</i> [19] (2018)    | To investigate the suitability of trauma sensitive yoga.                       | <i>n</i> = 9<br>aged 22-52                                  | Trauma sensitive yoga. for PTSD vets from Iraq/ Afghan with PCL of 30+                    | USA      | Restores social connection and improves body awareness and wellbeing.                                                                      |
| Galsgaard <i>et al</i> [20] (2020)  | To investigate the suitability of PTSD dog ownership.                          | <i>n</i> = 5<br>aged 38-57                                  | PTSD dog ownership for vets with active service. Care for a puppy and Group work.         | Denmark  | Develops a sense of commitment and responsibility through building attachment.                                                             |
| Holliday <i>et al</i> [24] (2015)   | To explore the efficacy of Cognitive Processing Therapy.                       | <i>n</i> = 121                                              | Cognitive Processing Therapy for male / female veterans with Military Sexual Trauma PTSD. | USA      | Develops social functioning skills. Limited benefits only, not for overall quality of life.                                                |
| Johnson <i>et al</i> [28] (2004)    | To investigate the suitability of horse riding therapy.                        | <i>n</i> = 57<br>aged 18+<br>weight limit<br>fitness level. | Horse riding therapy for PTSD for vets under 220 lbs weight and fit.                      | USA      | Builds self-confidence and efficacy and develops social engagement.                                                                        |

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|------------------------------|-------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------|
| Johnson et al [29] (2018)    | To explore the efficacy of Intensive inpatient programme.                           | n = 3   | 15 week intensive multi-disciplinary inpatient programme for veteran and family.                | USA       | Maladaptive coping mechanisms decreased. Self-reporting for PTSD and self-esteem improved. Friendships and family links better. |
| Jones et al [30] (2000)      | To investigate the suitability of Group Therapy for the African American community. | n = 153 | Group Therapy for African American community PTSD.                                              | USA       | Concentrates on a sense of social continuity and connectedness.                                                                 |
| Lawrence et al [34] (2017)   | To investigate the suitability of a Civic Service programme.                        | n = 67  | Civic Service programme.                                                                        | USA       | Builds self-purpose, focus and a valued contributing position within the group dynamic.                                         |
| Lawrence et al [35] (2019)   | To investigate the suitability of a Civic Service programme.                        | n = 346 | Civic Service programme for post 9/11 veterans.                                                 | USA       | Builds self-purpose, focus and a valued contributing position within the group dynamic.                                         |
| Lobban et al [37] (2018)     | To explore the efficacy of an art therapy / workshop.                               | n = 4   | Art therapy intervention for experiential avoidance within PTSD. Focus groups.                  | UK        | Builds universality, cohesion, interpersonal development and development of hope. Improves day to day functioning.              |
| Lobben et al [38] (2020)     | To investigate the suitability of art and museum collection therapy.                | n = 8   | Art and museum collection therapy. Combat Stress. Focus groups.                                 | UK        | Developing self-confidence through increased social interactions and an improved sense of belonging.                            |
| Matthieu et al [40] (2017)   | To investigate the suitability of a Civic Service programme.                        | n = 346 | Civic Service programme for post 9/11 veterans.                                                 | USA       | Builds self-purpose, focus and a valued contributing position within the group dynamic.                                         |
| McLaughlin et al [44] (2019) | To investigate the suitability of PTSD dog group therapy.                           | n = 10  | PTSD dog group therapy.                                                                         | Australia | Group dynamic aids engagement. Emotion regulation improved. Positive life engagement.                                           |
| Nevins et al [51] (2013)     | To investigate the suitability of horse-centric therapy.                            | n = 1   | The Saratoga war Horse Project PTSD horse therapy. Single case study.                           | USA       | Aids emotional development of post deployed veterans. Fosters creativity and communication.                                     |
| Obenchain [52] (1991)        | To explore the suitability of 'welcome ceremony'.                                   | n = 3   | Welcome ceremony for Vietnam veterans. Treats 'Sanctuary trauma'.                               | USA       | Re-contextualises trauma and safe space. Improves emotional constriction and re-integration with society.                       |
| Otter et al [53] (2004)      | To investigate the suitability of a supervised aerobic Exercise programme.          | n = 5   | Supervised aerobic exercise programme for Vietnam vets. Focus groups.                           | Australia | Increases self-motivation, builds positive daily habits and resilience and constructs social support.                           |
| Pezzin et al [55] (2018)     | To investigate the suitability of guitar instruction therapy.                       | n = 40  | Guitar instruction therapy for PTSD.                                                            | USA       | Develops social connections and increases self-esteem and resilience.                                                           |
| Ragsdale et al [59] (1996)   | To investigate the suitability of inpatient adventure therapy.                      | n = 48  | Inpatient adventure therapy for Vietnam veterans. Group work.                                   | USA       | Creation of non-judgemental, accepting environment for normalisation and management.                                            |
| Trahan et al [75] (2016)     | To explore the efficacy of a modular telephone-based therapy programme.             | n = 1   | Telephone-based modular CBT programme. Single case study.                                       | USA       | Develops social interaction skills.                                                                                             |
| Weiss et al [79] (2018)      | To investigate the suitability of a web-based skills building programme.            | n = 51  | Web-based skills building for rural women veterans who have experienced Military Sexual trauma. | USA       | Concentrates on normalisation and acceptance through social engagement.                                                         |