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**Depression, anxiety, and stress in partners of Australian combat veterans and military personnel: A comparison with Australian population norms**

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## Abstract

Partners of Australian combat veterans are at an increased risk of experiencing mental health problems. For a comparative analysis of mental health of partners of veterans with that of their non-military counterparts, the study samples comprised (a) partners of Australian combat veterans (Sample 1:  $n = 282$ , age  $M = 60.79$ ,  $SD = 5.05$ ), (b) a random sub-sample of partners of Australian combat veterans from the previous sample (Sample 2:  $n = 50$ ;  $M = 60.06$ ,  $SD = 4.80$ ), (c) partners of Special Air Services Regiment (SASR) personnel (Sample 3:  $n = 41$ , age  $M = 34.39$   $SD = 7.01$ ), and (d) partners of current serving military (non-SASR) personnel (Sample 4:  $n = 38$ , age  $M = 32.37$ ,  $SD = 6.20$ ). Respondents completed measures to assess their reported levels of depression, anxiety, and stress. The two samples (Samples 1 and 2) for partners of Australian combat veterans reported significantly poorer symptoms of depression, anxiety, and stress than the comparative population norms. The sample of SASR personnel partners reported significantly greater levels of depression and anxiety, while the sample with non-SASR personnel partners reported a significantly poorer symptomatology in stress than the comparative norms. Lessons and protective factors can be learnt from groups within the current military as to what may assist partners and families to maintain a better level of psychosocial health.

**Key words:** caregiving distress, partners of veterans, dyadic adjustment, mental health, combat veterans, PTSD

## Introduction

Partners of military and combat veterans are at a risk of experiencing higher levels of mental health distress symptomatology. Progress has been made in research of partners of veterans regarding their psychosocial outcomes and the major issues they face (Beckham et al. 1996; Calhoun et al. 2002; MacDonell et al. 2010; MacDonell et al. 2014; Renshaw & Campbell 2011; Renshaw & Caska 2012; Solomon et al. 1991; Westerink & Giarratano 1999). Evidence suggests that partners of veterans with Posttraumatic Stress Disorder (PTSD) showed higher levels of emotional distress than those in the non-military population (Dekel et al. 2005), and that partners of veterans with PTSD experienced higher levels of caregiver burden and lower levels of psychological adjustment than those partners whose veteran did not have PTSD (Calhoun et al. 2002).

There is a growing interest in understanding the relationship between veterans' deployment stressors and exposure to combat and their partners' risk for mental health and dyadic adjustment problems (Calhoun et al. 2002). The personal and family relationships of veterans are often marked by considerable distress and dyadic maladjustment (MacDonell et al. 2010; MacDonell et al. 2014; Outram et al. 2009). Findings from the United States (US) Israel, Holland, Croatia, Iran (Calhoun et al. 2002; Dekel et al. 2005; Dirkzwager et al. 2005; Frančikovišć et al. 2007; Salimi et al. 2006) and Australia (MacDonell et al. 2010; MacDonell et al. 2014; Outram et al. 2009; Westerink & Giarratano 1999) have suggested that partners of combat veterans have a significantly higher risk of developing psychosocial problems as a result of living and caring for their veterans, particularly those veterans with PTSD. Moreover, it has been shown that the psychosocial functioning of partners is poorer than the general population overall (Beckham et al. 1996; MacDonell et al. 2010; Westerink & Giarratano 1999).

Given the recent multiple deployments and heightened tempo of military life, more research is needed into family factors affecting the veteran and the veterans' families. Research has also found that the military lifestyle can have negative outcomes on the family, particularly the spouse or partner (Burrell et al. 2006). Separation (not only from deployment), unpredictable duty hours, frequent relocations and single parenting are just a few of the stressors that face partners of military personnel on a regular basis (Padden et al. 2011). Moreover, attempting to build a career while being a military spouse is difficult, with some suggesting that existing gender inequality in the workplace gives partners a dual disadvantage (Doherty et al. 2015). There is also evidence that behavioural health amongst partners is becoming more problematic (Ahmadi & Green 2011), including increases in drug and alcohol use.

Importantly, research has recently recognised that the partner of a military person plays a crucial role in the health of the military and veteran couple (Lewis et al. 2012). While most research surrounding partners of the military and combat veterans has compared those partners of veterans with PTSD with those without PTSD, there has not been ample research that compares the overall functioning of partners of the military and veterans with partners of non-military and veterans. Moreover, no research has compared the partners of different services (e.g., regiments).

The present paper firstly examines the levels of depression, anxiety and stress of a group of partners of veterans and military personnel (from now on referred to as veterans) and compares them with norms for the Australian population. Secondly, the research looks at the similarities and the differences between different sub-groups of partners of the Australian military: the Special Air Services Regiment (SASR), currently serving military who are not SASR partners and partners of veterans who have left the military (a description of each sub-group sample is provided in Method section).

## Method

### Participants

**Sample 1.** Participants were 282 female partners of Australian veterans. These participants were mostly members of the Partners of Veterans Association of Australia (PVA). Membership in this association is open to all partners of current and former partners served in the theatre of war or campaign, or who are currently serving in any peacekeeping, peace-making, or operational service. Participants were recruited via a self-report questionnaire via the PVA newsletter. Partners' ages ranged from 43 to 83 years ( $M = 60.79$ ,  $SD = 5.05$ ). Their length of marriage ranged from seven to 60 years ( $M = 35.43$ ,  $SD = 9.74$ ). Participants reported that the veterans had served in the Air Force (12%), Army (82%), and Navy (6%). Just over half (53%) of the veterans had been long-term service personnel, with 44% being National Conscripts, while 3% were National Conscripts who stayed on to become long term service personnel. The percentage of veterans in different conflict zones was 1% in World War II, 2% in Korea, 9% in Malaya/Borneo, 82% in Vietnam, 0.5% each in Somalia, Sinai, Kashmir, Gulf War 1 and East Timor, while 1% indicated 'other' as their first conflict. Of those who indicated that they had been deployed in an active service zone more than once, 68% had been deployed twice, 9% three times, 9% four times and 4% five times.

**Sample 2** (as second PVA sample). The first 50 participants who were still living with a veteran at the time of data collection were selected at random from the larger sample of participants from the PVA in Sample 1. PVA female partners' ages ranged from 43 to 70 years ( $M = 60.06$ ,  $SD = 4.80$ ). Their length of marriage ranged from seven to 47 years ( $M = 34.22$ ,  $SD = 10.41$ ). Of those who indicated that they had been deployed in an active service zone more than once, 50.0% had been deployed twice, 12.5% three times, 12.5% four times and 12.5% five times.

**Sample 3.** These were partners of Special Air Service Regiment (SASR) personnel,  $N = 41$ . The SASR personnel partners' ages ranged from 23 to 49 years ( $M = 34.39$ ,  $SD = 7.01$ ). The length of their relationship ranged from one to 30 years ( $M = 11.66$ ,  $SD = 7.53$ ). Two SASR members had not been deployed, while one had been deployed once, two twice, six were deployed three times, six four times, five were deployed five times, one six times and three seven times, five were deployed eight times, three nine times, three ten times and four had been on deployed over 12 times.

**Sample 4.** This group consisted of 38 partners of contemporary Defence personnel (non-SASR). The SASR and the current serving non-SASR partner participants completed an online survey over a period of two weeks following meetings discussing their issues. Defence partners' (non-SASR) ages ranged from 22 to 48 years ( $M = 32.37$ ,  $SD = 6.20$ ). The length of the relationship ranged from two to 23 years ( $M = 9.55$ ,  $SD = 5.07$ ). Two Defence personnel had not yet been deployed, nine had been deployed once, eight deployed twice, 11 had been deployed three times, one member had been deployed four times, another, five times and another, eight times. Two had been deployed seven times and three members had been deployed more than 12 times.

## Measures

**The Depression Anxiety Stress Scales (DASS).** The 21-item DASS (Lovibond & Lovibond 1995) was used to assess levels of depression, anxiety, and stress in partners of veterans. It is a 21-item self-report yielding the three scales. Each scale consists of seven items, answered on a Likert like scale from 0 to 3. A sample item for Depression is "*I couldn't seem to experience any positive feeling at all*"; for Anxiety: "*I was aware of dryness of my mouth*", and for Stress: "*I found it difficult to relax*". Low scores on these scales reflect better mental health. Antony, Bieling, Cox, Enns, and Swinson (1998) validated the scale through findings that depressive patients scored highest on the depression and stress

subscales, while panic disorder patients scored highest on the anxiety subscale. The depression subscale measures dysphoria, hopelessness, anhedonia and inertia, while the anxiety subscale assesses autonomic arousal and situational anxiety. The stress subscale assesses difficulty in relaxing, impatience and chronic non-specific arousal (Lovibond & Lovibond 1995). The totals of each scale were multiplied by two to reflect the scores of the DASS 42 and interpreted to the normative data for the full scales (Lovibond & Lovibond 1995).

For depression, anxiety, and stress, Cronbach's  $\alpha$ s for Sample 1 were .94, .90 and .91, respectively; for Sample 2,  $\alpha$ s were .86, .87 and .81, respectively; for Sample 3,  $\alpha$ s were .78, .62, and .62, respectively, and Sample 4,  $\alpha$ s were .96, .88, and .84, respectively.

## Procedure

Participants in Sample 1 were asked to complete a self-report questionnaire that was sent out in a national newsletter to partners of veterans. SASR and non-SASR (Samples 3 and 4) participants were asked to fill out a questionnaire online over a 2-week period. Sample 2 participants who were still living with a veteran at the time of data collection were selected at random from the larger group of participants from Sample 1 to compare with the other three samples. Ethics approval was given by Human Research Ethics Committee, University of New England, and approval number HE09/151. Participants gave their consent by clicking a 'proceed' button after reading basic information about the study.

## Statistical Analysis

All statistical analyses were run using SPSS version 22. For the comparative analyses, a series of one-sample t-tests were conducted. All missing data (< 3%) were considered missing completely at random and were replaced with values computed by the expectation maximisation algorithm in SPSS (Tabachnick & Fidell 2001).

## Results

The reported levels of depression, anxiety, and stress were moderately higher, than female normative levels, in the first Sample 1 and the sub sample for Sample 2 partners of veterans (see Tables 1 and 2, respectively). The findings for partners of Australian SASR members showed that they had lower levels of depression, anxiety, and stress than the normative data but the differences were only small, (see Table 3). Comparing norms with depression, anxiety, and stress levels in partners of Australian current serving non-SASR members showed only a small significant difference for stress being higher in the non-SASR members than in the normative data (see Table 4).

Partners of Australian combat veterans (Sample 1) reported mean scores in the *moderate* range for depression ( $M = 16.09$ ), anxiety ( $M = 12.61$ ), and stress ( $M = 19.69$ ), and the Sample 2 depression mean scores ( $M = 18.84$ ), anxiety ( $M = 12.88$ ) and stress ( $M = 22.68$ ) were also moderate. SASR participants (Sample 3) were in the non-clinical range for all categories: depression ( $M = 4.15$ ), anxiety ( $M = 2.45$ ), and stress ( $M = 9.65$ ). Current serving non-SASR partners (Sample 4) were in the non-clinical range for depression ( $M = 9.64$ ) and anxiety ( $M = 5.59$ ), but marginally in the mild category for stress ( $M = 14.31$ ). The severity ratings for DASS normative data (Lovibond & Lovibond, 1995) are presented in Table 5.

Table 1

*Summary Statistics for DASS for Sample 1 Partners of Australian Combat Veterans (PVA; n = 282) and DASS Normative Data*

DASS 42 Scores	PVA M (SD)	Norms M (SD)	t(281)	Mean Difference	95% CI (Mean Difference)	Hedges' g	95% CI (Hedges' g)
Depression	16.09 (12.58)	6.14 (6.92)	13.27*	9.95	8.47, 11.42	0.79	0.62, 0.96
Anxiety	12.61 (11.83)	4.80 (4.70)	11.08*	7.81	6.42, 9.19	0.66	0.49, 0.83
Stress	19.69 (11.71)	10.29 (8.16)	13.47*	9.39	8.02, 10.77	0.80	0.63, 0.97

Norms based on Females' normative data sample (N= 1870), Lovibond & Lovibond (1995). Hedges' effect size: small (0.2) medium (0.5) and large (0.8).

\*  $p < .001$ .

Table 2

*Summary Statistics for DASS for Sample 2 Partners of Australian Combat Veterans (PVA; n = 50) and DASS Normative Data*

DASS 42 Scores	PVA M (SD)	Norms M (SD)	t(49)	Mean Difference	95% CI (Mean Difference)	Hedges' g	95% CI (Hedges' g)
Depression	18.84 (12.27)	6.14 (6.92)	7.32*	12.70	9.21, 16.19	0.44	0.27, 0.60
Anxiety	12.88 (11.00)	4.80 (4.70)	5.19*	8.08	4.95, 11.22	0.31	0.41, 0.48
Stress	22.68 (11.58)	10.29 (8.16)	7.56*	12.39	9.09, 15.68	0.45	0.28, 0.62

Norms based on Females normative data sample (N= 1870) Lovibond & Lovibond (1995). Hedges' effect size: small (0.2) medium (0.5) and large (0.8).

\*  $p < .001$ .

Table 3

*Summary Statistics for DASS for Sample 3 Special Air Service Regiment (SASR; n = 40) and DASS Normative Data*

DASS 42Scores	SASR M (SD)	Norms M (SD)	t(39)	Mean Difference	95% CI (Mean Difference)	Hedges' g	95% CI (Hedges' g)
Depression	4.15 (4.58)	6.14 (6.92)	-2.75*	-1.99	-3.46, -0.52	-0.16	-0.33, 0.00
Anxiety	2.45 (5.39)	4.80 (4.70)	-2.76*	-2.35	-4.07, -0.63	- 0.16	-0.33, 0.00
Stress	9.65 (7.62)	10.29 (8.16)	-0.53	-0.64	-3.08, -1.79	-0.03	-0.20, 0.13

Norms based on Females' normative data sample (N= 1870), Lovibond & Lovibond (1995). Hedges' effect size: small (0.2) medium (0.5) and large (0.8). Number of participants is 40 rather than 41 as one participant did not answer the DASS questionnaire.

\*  $p < .05$ .

Table 4

*Summary Statistics for DASS for Sample 4 of Current Serving Non-Special Air Service Regiment (non-SASR; n = 38) and DASS Normative Data*

DASS 42 Scores	Non-SASR M (SD)	Norms M (SD)	t(37)	Mean Difference	95% CI (Mean Difference)	Hedges' g	95% CI (Hedges' g)
Depression	9.63 (10.04)	6.14 (6.92)	1.95	3.50	-0.14, 7.12	0.32	-0.14, 0.77
Anxiety	4.32 (5.63)	4.80 (4.70)	-0.53	-0.59	-2.33, -1.37	- 0.09	-0.54, 0.36
Stress	14.58 (8.97)	10.29 (8.16)	2.94*	4.29	1.34, -7.24	0.48	0.02, 0.93

Norms based on Females' normative data sample (N= 1870), Lovibond & Lovibond (1995). Hedges' effect size: small (0.2) medium (0.5) and large (0.8).

\*  $p < .05$ .

Table 5

*DASS 42 Severity Ratings taken from Lovibond and Lovibond (1995)*

Rating	Depression	Anxiety	Stress
Normal	0 – 9	0 – 7	0 – 14
Mild	10 – 13	8 – 9	15 – 18
Moderate	14 – 20	10 – 14	19 – 25
Severe	21 – 27	15 – 19	26 – 33
Extremely Severe	28+	20+	34 +

## Discussion

The present study compared three of the major symptoms of psychosocial functioning: Depression, Anxiety and Stress against the commonly used norms for partners of current and past serving Australian combat veterans. Secondly, it examined some of the differences and similarities within the different samples of those partners. To date, there has been no comparative evidence of mental health symptomatology and normative data, nor has there been comparisons between different groups of partners of Australian combat veterans.

While many researchers have found that the health of the partner impacts significantly on the health outcomes of the veterans (Ahmadi & Green 2011) and that partners and family units are the principal support systems for veterans (Renshaw et al. 2010), however, limited emphasis has been put on comparative analysis of psychological health of partners with national normative data. Results indicated that those in the older mean age group comprising partners of Australian combat veterans (Samples 1 and 2) reported poorer symptomatology as compared with normative data than those in the younger groups (Samples 3 and 4). This may have implications for support services for partners and families of combat veterans. Preventative programs may be more appropriate for the younger partners, while more clinical and respite support services may be required for the older partners.

It should also be noted that partners of SASR members had lower levels of depression and stress, than the Australian normative data, although the effects were only small. Partners of SASR members have the ability to stay in the same location compared to the non-SASR partners. Some non-SASR partners can be relocated every two to three years from one side of Australia to another and have to form new relationships and support systems each move. The majority of the SASR-cohort partners were professionals with a solid career. Constant relocations have shown to have a detrimental effect on partners of non-SASR career and employment opportunities (Australian National Audit, 2010). This could serve as another life stressor for the partners. Our results show that current-serving non-SASR partners in this cohort indicated elevated stress levels compared to the Australian normative data. This could suggest a constant state of hyperarousal, which reflects issues and problems in meeting current life demands (Lovibond & Lovibond 1995).

There are some limitations of the present research. First, there was a single measure (DASS) used to examine the mental health symptomatology. Future research could include other measures to assess mental health problems.. Second, the present study used a convenience sample, which could potentially have biased results. Finally, Samples 2, 3 and 4 were small in number and future research could look at larger samples.

## Conclusion

Although these findings are preliminary, the present research suggests that the mental health of older partners of Australian combat veterans is poorer in terms of increased depression, anxiety and stress levels than the comparative norms. Partners of veterans and military personnel members constitute a population at risk. Partners such as those in the PVA cohort need immediate and adequate support to care for their veteran and enjoy a better quality of life. Furthermore, as partners play a key role in the military members' health,

particularly after operational service, it is crucial that appropriate support be given to the younger and current serving partners and their families.

## References

- Ahmadi H, and Green SL. 2011.** Screening, brief intervention, and referral to treatment for military spouses experiencing alcohol and substance use disorders: A literature review. *Journal Clinical Psychology Medical Settings* **18**:129-136. DOI 10.1007/s10880-011-9234-7
- Beckham JC, Lytle B, and Feldman M. 1996.** Caregiver burden in partners of Vietnam war veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology* **64**(5):1066-1072. DOI 10.1037/0022-006X.64.5.1068
- Burrell LM, Adams GA, Durand DB, and Castro CA. 2006.** The Impact of Military Lifestyle Demands on Well-Being, Army, and Family Outcomes *Armed Forces & Society* **33**(1):43-58. DOI 10.1177/0002764206288804
- Calhoun PS, Beckham JC, and Bosworth HB. 2002.** Caregiver burden and psychological distress in partners of veterans with chronic posttraumatic stress disorder. *Journal of Traumatic Stress* **15**(3):205-212. DOI 10.1023/a:1015251210928
- Dekel R, Goldblatt H, Keidar M, Solomon Z, and Polliack M. 2005.** Being a wife of a veteran with posttraumatic stress disorder. *Family Relations* **54**:24-36. DOI 10.1111/j.0197-6664.2005.00003.x
- Dirkzwager AJE, Bramsen I, Adèr H, and van der Ploeg HM. 2005.** Secondary Traumatization in partners and parents of Dutch peacekeeping soldiers. *Journal of Family Psychology* **19**(2):217-226. DOI 10.1037/0893-3200.19.2.217
- Doherty C, Patton W, and Shield P. 2015.** *Family mobility: reconciling career opportunities and educational strategy*. United Kingdom: Routledge.
- Frančiković T, Stevanovic A, Jelušić I, Roganović B, Klarić M, and Grković J. 2007.** Secondary traumatization of wives of war veterans with posttraumatic stress disorder. *Croatian Medical Journal* **48**:177-184.
- Lewis M, Lamson A, and Leseuer B. 2012.** Health Dynamics of Military and Veteran Couples: A Biopsychorelational Overview. *Contemporary Family Therapy* **34**(2):259-276. DOI 10.1007/s10591-012-9193-7
- Lovibond PF, and Lovibond SH. 1995.** The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour, Research and Therapy* **33**:335-343.
- MacDonell G, Marsh NV, Hine DW, and Bhullar N. 2010.** The development and psychometric evaluation of a measure to assess distress in partners of Australian combat veterans. *Australian and New Zealand Journal of Psychiatry* **44**:839-845. DOI 10.3109/00048674.2010.488214
- MacDonell G, Thorsteinsson EB, Bhullar N, and Hine DW. 2014.** Psychological functioning of partners of Australian Combat veterans: Contribution of veterans' PTSD symptoms and partners' caregiving distress. *Australian Psychologist* **49**(5):305-312. DOI 10.1111/ap.12069
- Outram S, Hansen V, MacDonell G, Cockburn J, and Adams J. 2009.** Still living in a war zone: Perceived health and wellbeing of partners of Vietnam veterans attending partners' support groups in NSW, Australia. *Australian Psychologist* **44**(2):128-135. DOI 10.1080/00050060802630353
- Padden DL, Connors RA, and Agazio JG. 2011.** Stress, Coping, and Well-Being in Military Spouses During Deployment Separation. *Western Journal of Nursing Research* **33**(2):247-267. DOI <http://dx.doi.org/10.1177/0193945910371319>
- Renshaw KD, and Campbell SB. 2011.** Combat veterans' symptoms of PTSD and partners' distress: The role of partners' perceptions of veterans' deployment experiences. *Journal of Family Psychology* **25**(6):953-962. DOI 10.1037/a0025871
- Renshaw KD, and Caska CM. 2012.** Relationship distress in partners of combat veterans: The role of partners' perceptions of posttraumatic stress symptoms. *Behavior Therapy* **43**:416-426. DOI 10.1016/j.beth.2011.09.002

- Renshaw KD, Rodebaugh TL, and Rodrigues CS. 2010.** Psychological and marital distress in spouses of Vietnam veterans: Importance of spouses' perceptions. *Journal of Anxiety Disorders*, **24**(7):743-750.
- Salimi SH, Azad-Marazbadi E, Karaminia R, Mirzamani SM, and Hosseini-Sangtrashani S. 2006.** Being a wife of a veteran with psychiatric problem or chemical warfare exposure: A preliminary report from Iran. *Iranian Journal Psychiatry* **1**:65-69.
- Solomon Z, Waysman M, Avitzur E, and Enoch D. 1991.** Psychiatric symptomology among wives of soldiers following combat stress reaction: The role of the social network and marital relations. *Anxiety Research* **4**(213-223).
- Tabachnick BG, and Fidell L, S. 2001.** *Using multivariate statistics*. Sydney: Allyn and Bacon.
- Westerink J, and Giarratano L. 1999.** The impact of posttraumatic stress disorder on partners and children of Australian Vietnam veterans. *Australian and New Zealand Journal of Psychiatry* **33**:841-847. DOI 10.1046/j.1440-1614.1999.00638.x