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# Vietnam Veterans Family Study

## Spouses and partners of Vietnam veterans – Summary of findings from the Vietnam Veterans Family Study

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*Australian Institute of Family Studies*

2021

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# Glossary

Term	Description
Mediation	A model to identify and explain the mechanism or process that underlies an observed relationship between a predictor and an outcome via the inclusion of a third variable, known as a mediator variable
Moderation	A model to determine whether the relationship between two variables depends on (is moderated by) the effect of a third variable, known as a moderator variable
Nominal Roll	This roll was developed by the Department of Veterans' Affairs in conjunction with the Department of Defence and was used as the main tool for recruitment into the study.
Post-traumatic stress disorder (PTSD)	PTSD is a stress reaction to an exceptionally threatening or traumatic event that would cause pervasive distress in almost anyone. Symptoms are categorised into three types: re-experiencing memories or flashbacks, avoidance symptoms, and either hyperarousal symptoms (increased arousal and sensitivity to cues) or inability to recall important parts of the experience.
Representativeness	The degree to which the sample selected for study can accurately represent or reflect the broad characteristics of the target population
Vietnam veterans (VV)	For the purpose of this study, Army servicemen who were deployed to the Vietnam War (1962–75)
Vietnam-era personnel (VEP)	For the purpose of this study, Army servicemen who served in the Australian military at the time of the Vietnam War but were not deployed.
VVFS	The Vietnam Veterans Family Study, encompassing VV and VEP ex-servicemen, and their adult children and spouses/partners
VVFS Spouses/Partners Study	The component of the Vietnam Veterans Family Study that examined the health and wellbeing of spouses/partners of Vietnam veterans and Vietnam-era personnel

## Key messages

The Department of Veterans' Affairs established the Vietnam Veterans Family Study in 2007 with the aim of undertaking a comprehensive survey of the wellbeing of the families of Vietnam veterans and Australian Defence Force personnel. The study aimed to provide an assessment of the impact of service in the Vietnam War on the lives of family members of Australia's veterans by comparing the health and wellbeing of family members of Australian Army Vietnam veterans (VV) with family members of other men who served in the Australian Army during the Vietnam War period (1962–75) but were not deployed to the war (VEP). The family members who took part in the study were the adult children and spouses and partners of ex-servicemen.

This report summarises the findings for the spouses and partners of veterans. The following key differences between the VV and VEP groups were identified:

1. VV spouses and partners were faring less well than VEP spouses and partners in many areas of life. Effects of Vietnam War service seemed to be evident more than 40 years after the war ended.
2. Mental health was one area in which many statistically significant differences were found. Around one in three VV spouses/partners had been diagnosed with depression in their lifetime, and three in ten with anxiety. About four in ten had experienced suicidal ideation (thoughts, plans or attempts) in their lifetime. Lastly, they more often felt their general mental health had recently been poor. These rates were significantly higher than the rates for VEP spouses/partners.
3. Another area in which several statistically significant differences were found was couple relationships. Although most were very positive about their couple relationships, VV spouses and partners tended to perceive their couple relationship less positively. While very rare overall, they had more often experienced abuse at some stage of the relationship. They tended to be less satisfied with their current relationships with veteran spouses/partners and their own children, but not their relationships with other family members such as parents and siblings.
4. When these differences were analysed further, the main way in which Vietnam War service seemed to affect spouses and partners was through the later development of PTSD in veterans. However, this was not always so and there were still some visible effects of Vietnam War service for some outcomes.
5. Given the importance of veterans' PTSD for spouses'/partners' wellbeing, the study also investigated whether spouse/partner characteristics and resources had been able to reduce the effects of veterans' PTSD. It seemed that the use of military-related services had been effective in ameliorating the impact of veterans' PTSD on spouses and partners.



# 1. Introduction

Deployment to war can have many negative consequences for servicemen. Not only do they face immediate risks of death and physical disability, but their later mental and physical health and social and economic participation can be compromised for many years. Australian research shows that 43 years after the Vietnam War, 69.7 per cent of 60,228 Vietnam veterans had at least one government-accepted disability associated with the war and many had multiple disabilities (Clark, Gregory, & Salomon, 2015). The main types of disabilities were eye and ear disorders (48.0 per cent), mental health conditions (47.9 per cent), and musculoskeletal disorders (18.4 per cent).

While there are clear negative effects of Vietnam War service for veterans, much less is known about the effects on their families, particularly in the long term. This is an important issue as families play a crucial role in supporting servicemen during and after their military service. This can be difficult if family members, themselves, are struggling with the repercussions of their servicemen's military service. For instance, the period when servicemen are away fighting a war can be difficult for stay-at-home family members who, at the same time as worrying about the health and safety of their deployed servicemen, shoulder greater family responsibilities such as a change in their family role and becoming the sole decision maker (Chartrand, Frank, White, & Shope, 2008). Spouses/partners may need to change work arrangements to look after families and households, and can experience mental and physical health problems during this time (Murphey, Darling-Churchill, & Chrisler, 2011; Padden, Connors, & Agazio, 2011).

The period after servicemen return home can also be difficult for families. Numerous studies suggest that servicemen can have difficulty relating to others (Manguno-Mire et al., 2007; Solomon, Dekel, & Zerach, 2008), fitting back into family life, and taking up their family roles (Galovski & Lyons, 2004). There can be couple relationship difficulties, although Australian and international research suggests that this mainly occurs when veterans develop PTSD or other mental health conditions, or have been exposed to combat (Evans, McHugh, Hopwood, & Watt, 2003; Jordan et al., 1992). Finally, there can be effects on the mental health of spouses/partners and children, both in the short and longer term (Chatterjee, Spiro, King, King, & Davison, 2009; Davidson & Mellor, 2001; Ruscio, Weathers, King, & King, 2002).

The main way in which war service is thought to affect families is through the development of PTSD and other mental health conditions in servicemen as a result of their wartime experiences. For example, Australian research shows that three decades after the Vietnam War, spouses/partners of veterans suffering mental

health difficulties such as PTSD were themselves more likely to experience mental health problems such as anxiety disorders or severe recurrent depression than other similarly aged women in the general community (O’Toole, Outram, Catts, & Pierse, 2010). Therefore, to more fully understand the effects of veterans’ Vietnam War service on families, it is important to also consider whether mental health conditions such as PTSD are responsible for the apparent effects of the Vietnam War.

Most research has examined the short-term and medium-term effects of Vietnam War service on families, with much less known about potential long-term effects. While these could wane over time, it is also possible that they persist and, if so, there can be an ongoing need for services and supports to assist ex-servicemen and their families. In particular, there has been very little research on the long-term wellbeing of Australian families of Vietnam veterans, including a shortage of large-scale studies that could provide reliable information on this issue. This lack of knowledge motivated the Australian Government Department of Veterans’ Affairs (DVA), as part of their Family Studies Program, to establish the Vietnam Veterans Family Study (VVFS) in 2007, a comprehensive, large-scale study of army ex-servicemen and their families.

The VVFS program investigated the physical, psychological, social and economic wellbeing of the spouses/partners and adult children of Vietnam veterans, to determine whether there are long-term effects of deployment to the Vietnam War on these family members. To more clearly understand the effects of Vietnam War service, the families of army Vietnam veterans (VVs) were compared to families of other men who served in the Australian Army during the same period (1962–75) but were not deployed to Vietnam (called Vietnam-era personnel – VEP – from hereon).

Several reports have been published on the wellbeing of adult children of Vietnam veterans (Commonwealth of Australia, 2014; Forrest, Edwards, & Daraganova, 2014). More recently, a detailed report has been completed on the wellbeing of Vietnam veterans’ spouses and partners (Yu, Smart, & Daraganova, 2021), with a summary of the major findings presented here. The VVFS Spouses/Partners study aimed to address the following questions:

1. Has Australian veterans’ Vietnam War service affected their spouses’/ partners’ long-term mental, physical and social health, and couple and family relationships?
2. Did veterans’ PTSD account for the effects of Vietnam War service on spouses/partners? Were spouse/partner characteristics able to alleviate the effects of veterans’ PTSD?
3. What are the main implications of the findings for policy and service delivery?



## **2. About the Vietnam Veterans Family Study**

The Vietnam Veterans Family Study was a multi-generational study, investigating the physical, mental and social welfare of the spouses/partners and adult children of men who served in the Australian Army during the Vietnam era (1962–75). The research design of comparing the families of Vietnam veterans (VV) and Vietnam-era personnel (VEP) enables differences between the two types of families to be used to estimate the impact of service in the Vietnam War, provided alternative explanations for those differences can be excluded.

The DVA Nominal Roll of Vietnam Veterans was accessed to derive a random sample of Vietnam veterans who could be invited to participate in the VVFS. A sample of VEP ex-servicemen was obtained from the Australian Electoral Roll and from DVA client lists. Initially, a letter from DVA was sent to VV and VEP ex-servicemen introducing the study and informing them they would be contacted by the fieldwork agency (Colmar Brunton Social Research) to invite their participation. During the fieldwork agency's subsequent contact, ex-servicemen were asked to provide names and contact details for spouses/partners and adult children who could also be invited to take part, and to tell these family members that they would subsequently be contacted about the study and invited to participate in the VVFS.

Participation in the VVFS involved the completion of a mailed self-report questionnaire that was tailored for the type of respondent (i.e. ex-serviceman, spouse/partner, or adult child). In some cases, questionnaires were completed online or by telephone. Ex-servicemen and their family members were asked a range of questions about their social, emotional and physical welfare, current life circumstances, experiences while growing up, the impact of military service, and, for servicemen, their military experiences.

### **2.1 The spouse/partner sample**

In total, 3,318 VV families and 2,647 VEP families (ex-servicemen and/or their spouses/partners) participated in the VVFS. As information from both ex-servicemen and their spouses/partners was needed to investigate the long-term effects of Vietnam War service on spouses/partners, both types of family members had to have participated to be included in the analyses. Thus, the final analysis sample was constrained to 1,435 VV and 849 VEP families.

While the VV analysis sample was considerably smaller than the number of VVs on the DVA Nominal Roll, it was reasonably representative of the wider population

of Vietnam veterans from which it was drawn. Thus, VVFS veterans were just as likely as other Vietnam veterans to have served in combat roles and to have been exposed to combat-related harms.

Comparison of analysis sample families to the families who took part in the VVFS but were excluded from the analyses (because only ex-servicemen, or their spouses/partners, took part) revealed more mixed findings. The analysis sample seemed to be doing slightly better than excluded VVFS families on some characteristics, suggesting that the findings could provide a somewhat more positive picture of family relationships, late-in-life employment and financial wellbeing than might have emerged if a broader sample of Vietnam-era military families had been available. This should be borne in mind when considering the VVFS findings in these areas. However, no differences were found on spouses'/partners' physical or mental health, or problem drinking or marijuana use, suggesting that the analysis sample was relatively representative on these important outcomes.

All analyses were adjusted for pre-deployment differences between VVs and VEP when estimating the effects of Vietnam War service, making it unlikely that these differences have affected the results. Further details of these analyses can be found in Yu and colleagues (2021).

## **2.2 Demographic profile of the spouse/partner sample**

At the time the VVFS took place, spouses/partners were in their early 60s, on average. They most frequently reported their highest educational level to be a post-secondary diploma or certificate, followed by Year 10 or below. Around three-quarters owned their own home, and almost all others were paying off a mortgage. Their most common employment situation was being retired, followed by being employed. Around one in five were caring for a family member. Their most frequent income source was a government benefit, followed by a wage/salary, or earnings from investment/superannuation. Around three in ten had experienced some type of financial hardship in their lifetimes (such as not been able to pay electricity or gas bills on time, or having to go without meals), but only about seven per cent had experienced financial hardship in the past 12 months.

### 3. Long-term effects of the Vietnam War

To establish whether there were long-term effects of ex-servicemen's deployment to the Vietnam War, the health and wellbeing of VV spouses/partners were compared to corresponding outcomes for VEP spouses/partners, taking into account spouses'/partners' age and the length of couple relationships.

The outcomes and areas of life looked at were:

- *mental health* (general mental wellbeing; life satisfaction; depression; anxiety; PTSD; suicidal ideation including suicidal thoughts, plans or actions)
- *physical health* (general physical wellbeing; global health rating; presence of specific health conditions, e.g. circulatory system problems)
- *co-occurring mental and physical health problems*
- *substance use* (problem drinking; marijuana use)
- *family relationships* (satisfaction with relationship with ex-serviceman, children, siblings and parents; couple relationship quality; abuse in couple relationship; global family functioning)
- *socio-economic wellbeing* (employment; income source; housing; financial hardship; homelessness; educational level)
- *the effects of ex-servicemen's military service on spouses/partners* (e.g. on relationships; mental health; employment and financial situation).

Overall, while most spouses/partners were found to be faring relatively well, VV and VEP spouses/partners differed significantly on all the major areas of life examined. VV spouses/partners were more often experiencing difficulties than VEP spouses/partners.

#### 3.1 Mental and physical health

Spouses/partners of Vietnam veterans can be vulnerable to mental health difficulties (e.g. Chatterjee et al., 2009; O'Toole et al., 2010), in part perhaps because of the stress arising from supporting veterans who are struggling with mental or physical health problems (Mikulincer, Florian, & Solomon, 1995; Verbosky & Ryan, 1988). However, it is not clear whether effects on spouses/partners are still evident in late mid-life and into old age, an issue that the VVFS sought to explore.

Overall, the VVFS findings were consistent with previous research in showing that VV spouses and partners were significantly more vulnerable to mental health problems than VEP spouses/partners. VV spouses/partners were faring

significantly more poorly on five of the six mental health outcomes. For example, they had more often been diagnosed with or treated for depression (33.6 per cent compared with 27.2 per cent) or anxiety (30.2 per cent compared with 22.8 per cent) in their lifetime. Around four in ten had experienced suicidal ideation in their lifetime (thoughts, made a suicide plan, or attempted to take their lives) compared with around one-quarter of VEP spouses and partners. They tended to be feeling less satisfied with their lives currently. Lastly, they tended to be less positive about their general mental health than VEP spouses and partners and women of a similar age in the general Australian population.

A person's physical health can be affected by many factors such as their lifestyle, diet, activity level and genetic make-up. It might, therefore, be expected that spouses'/partners' physical health, as measured by the presence of specific health conditions, would not be much affected by their ex-servicemen's Vietnam service. However, for more subjective measures of physical health such as a person's perception of their general physical health, there might be effects, as suggested by other research showing that perceived physical wellbeing is related to social environment factors such as support networks, social integration and community-level factors (Woolf & Aron, 2013). This is indeed what was found, as significantly more VV than VEP spouses and partners felt their overall health had been only fair or poor in the past 12 months (27.6 per cent compared with 18.0 per cent). They also tended to rate their recent physical health less positively. However, there were few significant differences on rates of actual diagnosed or treated physical health conditions.

The VVFS also sought to gain a picture of whether spouses/partners were living with a combination of mental and physical health problems, which can take a greater toll on their lives (Daraganova, Smart, & Romaniuk, 2018). Therefore, the VVFS investigated whether spouses/partners had neither, one, or both of these health problems. Around six in ten VV spouses/partners were not experiencing either problem compared with around three-quarters of VEP spouses/partners. There were no significant differences on rates of physical health problems alone, with just under ten per cent of VV and VEP spouses/partners in this situation. However, VV spouses/partners significantly more often reported mental health problems than VEP spouses/partners, both alone (10.7 per cent compared with 4.1 per cent) and in combination with physical health problems (19.5 per cent compared with 12.7 per cent).

Summing up, these findings show long-term connections between Vietnam War service and VV spouses' and partners' mental health and their perceptions of their physical health. VV spouses and partners were also more often dealing with co-occurring mental and physical health problems.

There has been considerable political, scientific and community concern about whether Vietnam veterans' spouses/partners more often experienced pregnancy difficulties or whether their children were more frequently born with birth defects. This was particularly a concern for families of veterans exposed to Agent Orange in the war, for whom such problems are reported to be more common (Ngo, Taylor, Roberts, & Nguyen, 2006). The VVFS investigated whether VV spouses/partners more often experienced problems conceiving a baby, miscarriages, or still births than VEP spouses/partners; and whether their children were more likely to have been born with the birth defects of spina bifida or cleft palate. There were no significant differences on these aspects, which may be due to the fact that it was only possible to examine a broader risk – service in the Vietnam War – rather than the more specific risk of exposure to Agent Orange during the war.

### **3.2 Substance use**

Substance use can be a part of a person's social lifestyle but can also be a form of self-medication to deal with mental or physical health problems (Loxley et al., 2004). It can lead to addiction, which, in turn, can have deleterious effects on a person's life (Loxley et al., 2004). Given the known risk associated with substance use, it was important for the VVFS to investigate whether this was more common among VV than VEP spouses/partners.

While few spouses/partners reported substance use, there were some signs that it was more common among VV than VEP spouses/partners, as indicated by their higher rates of marijuana use in their lifetime (13.2 per cent compared with 8.6 per cent for VEP spouses/partners) and recent problem drinking (4.7 per cent compared with 1.6 per cent). They did not, however, significantly differ on recent marijuana use.

### **3.3 Family relationships**

Within-family, relationships can be tested during periods of change such as when servicemen are deployed to war, when they return home, and when they move from military to civilian life (Bowling & Sherman 2008; Chartrand et al., 2008; Ender, 2006; Muir, 2018). While servicemen's families tend to be resilient and find ways of coping with a military family lifestyle (Park, 2011; Sheppard, Malatras, & Israel, 2011), family relationships can come under pressure when current or former servicemen experience mental health problems, particularly PTSD, or physical disability as a result of wartime service (Calhoun, Beckham, & Bosworth, 2002; Carroll, Rueger, Foy, & Donohoe, 1998; Gibbs, Clinton-Sherrod, & Johnson, 2012; Jordan et al., 1992). However, little is known about the family relationships of Vietnam veterans long after the war.

Overall, there did seem to be some impact of veterans' Vietnam War experience on close family relationships, despite most spouses/partners reporting positively on these relationships. For instance, significantly fewer VV than VEP spouses/partners were satisfied with their relationships with their ex-servicemen (75.7 per cent compared with 86.7 per cent) and children (85.8 per cent compared with 92.7 per cent). As they did not significantly differ on their satisfaction with relationships with their siblings or parents, the differences found seem to reflect slightly less positive perceptions of relationships with immediate family members. This is consistent with the study's finding that VV spouses/partners tended to have significantly lower levels of satisfaction with the total family unit than VEP spouses/partners, although, as with the other aspects of family life examined, perceptions were generally positive here too.

VV spouses and partners also tended to report slightly, but significantly, less positive couple relationships. For example, when asked about elements of their couple relationship such as how supported they felt or whether their needs were being met, VV spouses/partners tended to be less positive, while the occurrence of abuse at some stage of the relationship was significantly higher for VV than VEP spouses/partners, although it was extremely rare in general (less than two per cent).

### **3.4 Socio-economic wellbeing**

Not only might health and family relationships be affected by Vietnam War experiences but also the socio-economic wellbeing of Vietnam veterans' families could be affected. Firstly, a number of Australian VVs have been found to experience mental or physical health difficulties as a result of their service (Clark et al., 2015; O'Toole, Catts, Outram, Pierse, & Cockburn, 2009), which may have then affected their employment and flowed on to affect families. Significantly more conscripted Vietnam veterans than other conscripted ex-servicemen were receiving a government pension when in their 50s, a trend that had begun in the 1990s (Siminski, 2010). This may also have affected their families' socio-economic wellbeing. Secondly, the hours worked and careers of VV spouses/partners might have been impeded if they were supporting and caring for ex-servicemen with mental or physical health difficulties, with these problems being more common among VV than VEP ex-servicemen. For example, rates of PTSD were 39.3 per cent among VVs participating in the VVFS compared with 7.1 per cent among VEP.

Overall, there were several indications that VV spouses and partners differed on socio-economic factors and had experienced more difficulties in this area than VEP spouses and partners. First, on labour force participation, they were significantly less often employed at the time of the VVFS than their VEP counterparts

(21.7 per cent compared with 35.6 per cent) and more often retired or semi-retired (54.6 per cent compared with 39.0 per cent). They less often reported their current main income source as being a wage or salary (16.2 per cent compared with 35.5 per cent of VEP spouses/partners) or superannuation/investment (22.6 per cent compared with 35.8 per cent) and more often a government benefit (61.2 per cent compared with 28.8 per cent). Over their working lives, they had significantly less often held between one and four jobs (48.0 per cent compared with 55.0 per cent of VEP spouses/partners) and significantly more often held between five and nine jobs (40.5 per cent compared with 33.3 per cent).

Second, they were slightly, though significantly, less likely to own their homes (71.4 per cent compared with 76.4 per cent), and more likely to be paying off a mortgage (23.5 per cent compared with 19.5 per cent). They were more likely to have experienced financial hardship such as had to pawn or sell something or ask a welfare agency for help during their lifetimes (35.4 per cent compared with 28.1 per cent) but not in the last 12 months.

These findings could also partly be due to the significantly lower levels of education evident among VV spouses/partners, since educational levels are known to be related to socio-economic wellbeing (Crystal, Shea, & Krishnaswami, 1992; Lordan, Soto, Brown, & Correa-Valez, 2012). More VV spouses/partners reported their highest education level as being Year 10 or below (39.7 per cent compared with 33.5 per cent of VEP spouses/partners) and fewer had attained a university degree (12.4 per cent compared with 17.5 per cent), although VV and VEP spouses did not significantly differ on rates of Year 12 completion or attainment of a post-secondary diploma/certificate. The analyses reported in section 4 controlled for the effects of spouses'/partners' education in order to rule out this alternative explanation for the differences found.

### **3.5 Effects of servicemen's military service on spouses/partners**

Spouses/partners were also asked to reflect back on the impact of their ex-servicemen's military service on various aspects of their own lives. Over all aspects, VV spouses/partners held significantly more negative views than VEP spouses/partners. Thus, they more often felt that their ex-servicemen's military service had negatively affected their own mental and physical health; their relationships with ex-servicemen, other immediate family members, wider family, and friends; and their employment and financial situation. It seems likely that these findings reflect the effects of Vietnam War service since this was the major difference in the military careers of VV and VEP ex-servicemen.

## 4. PTSD as a mechanism of the long-term effects of the Vietnam War

The VVFS has shown that deployment to Vietnam continued to be a significant stressor for families more than 40 years after the war. However, it is not clear whether this association is mediated through veterans' PTSD, as suggested by other research showing that veterans' combat exposure and PTSD are associated with an increased risk for psychiatric diagnoses among the spouses/partners of veterans (Chatterjee et al., 2009; O'Toole et al., 2010). Therefore, the VVFS Spouses/Partners study investigated whether Vietnam War exposure without the subsequent development of PTSD among veterans was still associated with spouse/partner adjustment and family relationships.<sup>1</sup>

The analyses accounted for the effects of other potentially influential characteristics or circumstances that could contribute to the health and wellbeing of spouses/partners:

- *spouse/partner characteristics* (e.g. whether they too had served in the ADF or another country's military service, their age, level of education, experience of financial stress, experiences while growing up)
- *servicemen characteristics* (e.g. physical health problems, problem drinking)
- *characteristics of spouses'/partners' parents* (e.g. whether parents had mental or physical health problems, were problem drinkers)
- *children's characteristics* (e.g. whether a child had mental health or behavioural problems, a long-term health condition, allergies, or a nervous system disease).

Unless such factors are included, the effects of Vietnam War experiences could be overstated. By including these factors, the study aimed to rule out alternative explanations for the findings.

The outcomes examined were spouses'/partners' mental health, physical health, co-occurring mental and physical health problems, problem drinking, and couple relationship quality. Spouses'/partners' socio-economic characteristics were included as controls in these analyses.

Overall, for almost all outcomes, the effects of veterans' Vietnam War experiences on spouses and partners could be explained by veterans' later development of PTSD. Nevertheless, significant connections between Vietnam War service and spouse/partner outcomes were often still present and appeared important. Several control factors also consistently contributed to spouse/partner outcomes.

<sup>1</sup> Mediation analyses were undertaken to investigate whether the effects of Vietnam War service remained once veterans' PTSD and other influential factors were included, following the methods of Baron and Kenny (1986). Further details of the analytic approach used can be found in Yu and colleagues (2021).



## 4.1 Veterans' PTSD and spouses'/partners' mental and physical health

Veterans' PTSD played a key role in explaining the impact of their Vietnam experiences on spouses'/partners' general mental health and suicidal behaviour, although did not completely mediate the effect of war exposure, suggesting that the effects of Vietnam War service remained and were important. For depression and anxiety, once other factors were included, there was no direct effect of Vietnam War service and nor were there effects via ex-servicemen's PTSD. These results differ from previous research showing that veterans' PTSD is a powerful risk for mental health difficulties in spouses/partners (Calhoun et al., 2002; MacDonell, Bhullar, & Thorsteinsson, 2016; McGuire et al., 2012).

One possibility is that veterans' Vietnam War experiences and subsequent PTSD were sources of pressure for spouses/partners, increasing vulnerability for poorer general mental health but being less pivotal for the development of serious mental illnesses. The VVFS measures of anxiety and depression differed to those in some other studies as they required spouses/partners to be diagnosed or treated by a health professional for anxiety or depression, whereas other studies identified individuals at risk for these outcomes using self-completed questionnaires. Thus, the VVFS' depression and anxiety outcomes might reflect more severe levels of problems than in some other studies. Another possibility is that some of the control factors included may have been more central to the development of anxiety and depressive disorders and may have outweighed the long-term effects of Vietnam War experiences.

Turning now to physical health, veterans' PTSD explained the previous relationships found between Vietnam War service and spouses'/partners' general physical health and sleep disturbances. Once veterans' PTSD was accounted for, Vietnam War service was not related to spouses'/partners' general physical health, though remained significant for sleep disturbances. By contrast, veterans' PTSD was not a salient influence for spouses'/partners' skin conditions. These findings could to some extent reflect the types of physical health outcomes examined, which may have differing causes. For example, one risk found for spouses'/partners' skin conditions was parental skin conditions, which could reflect environmental or intergenerational influences. Another possibility is that general physical health and sleep disturbances might be affected by a broader range of factors, both physiological and social, as suggested by the larger number and wider range of control variables related to these outcomes than found for skin conditions.

Lastly, veterans' PTSD was found to be significantly related to spouses'/partners' co-occurring mental and physical health problems and to mental health problems

alone. Once veterans' PTSD was accounted for, veterans' Vietnam service was not related to co-occurring mental and physical health problems, but remained significant for spouses'/partners' mental health problems alone. These findings are perhaps indicative of the mental health and physical burden experienced by spouses and partners who were caring for veterans with PTSD.

Summing up, veterans' PTSD was significantly related to most mental and physical health outcomes and, for the most part, explained the effects of Vietnam War service. Nevertheless, the effects of Vietnam War service were not always fully mediated by the veteran's PTSD and remained evident for a number of outcomes.

Several control factors were also relevant for spouses'/partners' mental health. These were: spouses/partners having a long-term physical health condition, living with a disability, or being in poorer general physical health; their children having had a mental health or behaviour problem; and their parents having had a mental health problem. It therefore seemed that spouses'/partners' physical health problems were a consistent risk for mental health problems, as was the burden of caring for a child with a mental health or behaviour problem, or having a parent who was vulnerable to mental health difficulties. A smaller set of control factors were related to spouses'/partners' physical health outcomes (see for details Yu et al., 2021).

## **4.2 Veterans' PTSD and spouses'/partners' problem drinking**

As found for spouses'/partners' mental health, veterans' PTSD explained relationships between Vietnam War service and spouses'/partners' problem drinking. Once it was accounted for, the effects of Vietnam War experiences were no longer significant.

Several control factors were related to spouses'/partners' problem drinking. Those who were older, had longer couple relationships, or had attained a university degree were less likely to report problem drinking, while those who were living with a disability or whose parent had a mental health problem were more likely to report problem drinking.

### **4.3 Veterans' PTSD and spouses'/partners' couple relationship quality**

Veterans' PTSD was found to be significantly related to couple relationship quality although the effects of Vietnam War service still existed and continued to be important. These findings suggest that while veterans' PTSD was a powerful influence on couple relationships, some effects of Vietnam War experiences persisted and continued to play a role more than 40 years after the war ended.

A range of control factors also played a role. Slightly better couple relationships were reported by spouses/partners who were retired/semi-retired or whose main occupation was household duties; however, couple relationships seemed to be more vulnerable when spouses/partners had experienced bodily pain, a mental health disorder, or financial stress in the past. Additionally, if servicemen had a mental health disorder or a child (or children) had a mental health or behaviour problem, couple relationship quality tended to be less positive.

## 5. Did spouse/partner characteristics reduce the effects of veterans' PTSD?

The above findings suggested that veterans' PTSD played a key role in explaining the effects of Vietnam service on spouses'/partners' outcomes over many areas of life. This raises the question of whether the effects of veterans' PTSD can be reduced if mitigating factors that buffer spouses/partners can be identified. The information gained could be used to guide future policies and services for ADF ex-servicemen and their families, enabling them to more successfully cope with and manage the pressures of ex-servicemen's PTSD.

Three main types of mitigating factors were explored:

- spouses'/partners' and veterans' use of health services, including government services provided specifically for soldiers and their families (e.g. Veterans and Veterans' Families Counselling Services (now named "Open Arms"), DVA websites and resources, or ex-service organisations), and more general community health services (e.g. general practitioners (GPs) or other community medical services apart from GPs)
- the amount of social support received from extended families or friends – whether spouses/partners see these individuals weekly/more often or less frequently
- the ways that spouses/partners cope with problems they encounter – the extent to which they use problem-focused strategies (e.g. trying to come up with a strategy about what to do), emotion-focused strategies (e.g. looking for something good in what has happened) or dysfunctional coping strategies (e.g. using alcohol or drugs to help get through it).

These analyses were only undertaken if a significant effect of veterans' PTSD was previously found.<sup>2</sup> The analyses controlled for veterans' Vietnam service, PTSD, and a range of other spouse/partner, veteran, child and parent factors. Six spouse/partner outcomes were examined: general mental health, suicidal ideation, general physical health, co-occurring mental and physical health problems, problem drinking, sleep disturbances, and couple relationship quality.

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<sup>2</sup> Moderated-mediation analyses were undertaken to investigate whether a factor (e.g. service use) reduced the effects of another factor (here, veterans' PTSD) on outcomes (e.g. mental health) (as per Baron and Kenny, 1986). Please see Yu and colleagues (2021) for details.

Overall, very few mitigating factors were found, and for only a very small number of outcomes. The two significant mitigating factors were spouses'/partners' use of military-related services, and the social support provided by friends. There were no significant effects for veterans' use of military-related services, veterans' and spouses'/partners' use of other health services, spouses'/partners' coping capacities, and the levels of support provided by families.

The only outcomes for which significant mitigating factors were found were spouses'/partners' general physical health, physical health problems alone (but not mental health problems alone or co-occurring problems), and problem drinking. No significant mitigating factors were found for spouses'/partners' general mental health, suicidal ideation, sleep disturbances, or couple relationship quality.

Spouses'/partners' use of military-related services seemed to play an important role in facilitating their physical health and ameliorating the effects of veterans' PTSD. Those who had not used these services seemed more adversely affected by veterans' PTSD than those who had used the services and whose veterans were suffering with PTSD. Thus, the use of military-related services seemed to play a crucial role in reducing the effects of veterans' PTSD on spouses'/partners' physical health.

Similarly, spouses'/partners' use of military-related services significantly reduced the effects of veterans' PTSD on spouses'/partners' likelihood of physical health problems alone (but not on their likelihood of mental health problems alone, or co-occurring mental and physical health problems). The path between veterans' PTSD and spouses'/partners' physical health problems remained significant for spouses/partners who did not use military-related services but was not significant for spouses/partners who used these services.

Together, these findings reinforce the importance of spouses/partners having access to military-related services as these were associated with better long-term physical health outcomes. Almost half the VV spouses/partners had used these types of services (45.3 per cent), as had 10.6 per cent of VEP spouses/partners. While we do not have details of the type of help received from military-related services, these services seemed to have had positive effects.

Weekly or more frequent social support from friends was linked to a higher likelihood of problem drinking among spouses/partners of veterans with PTSD compared to the spouses/partners of veterans with PTSD who received less frequent support. This result was unexpected, especially since social support from others is generally found to facilitate healthy psychological outcomes (e.g. Siedlecki, Salthouse, Oishi, & Jeswani, 2014).

One possible explanation is that spouses/partners who were struggling with the effects of veterans' PTSD frequently sought and obtained the support of friends, whereas those who had found ways of dealing with it did not seek such frequent support. Also, contact with friends may have taken place in social situations where alcohol was served, increasing the risk of problem drinking. The findings might also reflect the tendency of individuals to associate with others who are similar to themselves, which is a known psychological phenomenon (Rosenquist, Murabito, Fowler, & Christakis, 2010). In this scenario, spouses/partners who engage in problem drinking might have friends who also enjoy drinking and, when they meet, the venues chosen might involve drinking. It is also possible that social contacts can be a catalyst for alcohol use in certain situations; for example, to deal with unhappiness or stress (Kuntsche, von Fischer, & Gmel, 2008). While our data cannot clarify exactly how friends' support contributed to spouses'/partners' problem drinking, these are some possible explanations.

## **6. Did other aspects of Vietnam veterans' war experience affect spouses/partners?**

As well as probing whether veterans' PTSD accounted for the effects of serving in the Vietnam War, the VVFS also explored whether specific aspects of veterans' Vietnam experiences were related to spouses'/partners' long-term wellbeing. The aspects studied were the length of veterans' Vietnam deployment, their experience of trauma, self-reported exposure to Agent Orange, whether they were conscripts, the type of corps they served in and rank held, and whether spouses/partners were in a couple relationship with veterans at the time of soldiers' Vietnam War service. The spouse/partner outcomes examined were mental health, physical health, co-occurring mental and physical health problems, and couple relationship quality. The analyses controlled for the effects of veterans' PTSD and other spouse/partner, veteran, child and parent characteristics previously related to spouse/partner outcomes so that the effects of specific Vietnam wartime experiences could more clearly be seen.

There was only one significant finding: spouses/partners who had been in a couple relationship with veterans at the time of deployment were significantly less likely to report suicidal ideation in their lifetimes than their counterparts who were not in a couple relationship at that time. This finding could to some extent reflect positive effects of long-term couple relationships as these were (by definition) longer if formed prior to deployment. Otherwise, no other significant effects of the various elements of deployment examined were found.

Interestingly, when analyses were repeated without controlling for veterans' PTSD, several elements of Vietnam War service were significantly related to spouse/partner outcomes. These were: the experience of trauma during the war (related to poorer spouse/partner outcomes); exposure to Agent Orange (related to poorer spouse/partner psychosocial outcomes, although, as previously discussed, not to spouse/partner pregnancy difficulties or child birth defects); veterans' rank (being of higher rank was related to better spouse/partner outcomes); and veterans having been conscripted (related to better spouse/partner outcomes). These findings again point to the crucial role of veterans' PTSD. When it was included in the analyses, the links between these specific aspects of Vietnam War service and spouses'/partners' outcomes were non-significant.

## 7. Strengths and limitations of the VVFS

The VVFS had a number of strengths and limitations that could affect the applicability of its findings.

One of its strengths was the inclusion of Vietnam-era personnel and their spouses/partners who could be compared to VV ex-servicemen and their spouses/partners. This made it possible to gain a more accurate picture of the effects of Vietnam War service as the study could use a broadly similar comparison sub-group, who differed from the VV sub-group mainly on servicemen's exposure to the Vietnam War.

Another was the large sample size, which is likely to have increased the reliability of the study's findings. A larger sample size generally means that extreme responses have less impact because they are balanced by a larger number of moderate responses. Additionally, a large sample increases the probability of capturing a wide range of participant characteristics, making the study more representative of the population from which it comes.

Third, the study controlled for a broad range of spouse/partner, ex-serviceman, parent and child characteristics that were likely to be important contributors to spouse/partner outcomes. If these factors had not been included, their contribution to VV and VEP spouses'/partners' outcomes could have increased the magnitude of differences between VV and VEP spouses/partners and obscured the true effects of Vietnam War service. This could have resulted in an overstatement of the effects of Vietnam War experiences. Accounting for the effects of other important influences meant that the impact of Vietnam experiences could be more accurately delineated.

Finally, the study went beyond simply establishing that VV and VEP spouses/partners differed, by investigating: a) whether veterans' PTSD mediated the effects of Vietnam War service on spouses/partners; and b) whether spouse/partner characteristics and resources reduced the effects of veterans' PTSD. Again, these additional components of the study enabled a more accurate picture of the effect of Vietnam War service to be gained.

The study also had some limitations. First, as the predictors and outcomes were measured at the same time, it is not possible to know whether the predictors "caused" the outcomes. Ideally, predictors would be measured at an earlier timepoint than outcomes, while also measuring other important contributors at the earlier timepoint so their effects could be controlled. This would increase confidence that predictors occurred prior to the outcome and were likely involved in the development of the outcome. However, this was not possible in the VVFS,



hence the study was only able to observe that predictors were significantly associated with outcomes.

Second, it is not known exactly when some predictors and outcomes occurred. For example, some spouses/partners experienced financial hardship in their lifetimes, but it is not known exactly when this occurred. Similarly, some spouses/partners had been diagnosed with or treated for anxiety or depression but, again, the age at which they were diagnosed is not known. This creates imprecision and makes it more difficult to determine the direction of effects. Also, it is not known whether the measures reflect stable behaviours that have been present for a considerable period, or whether there has been change over time.

Third, veterans' PTSD was assessed as being present in the last four weeks but it is not known whether this had been ongoing or had recently developed. Additionally, veterans could have suffered with PTSD at an earlier stage but have recovered, which cannot be captured by this measure. Thus, there is some imprecision around the duration of servicemen's PTSD. Similarly, as most measures of servicemen's risk behaviours assessed recent behaviour (e.g. substance use), it is not known whether these symptoms have been ongoing or were only recent.

Finally, while the VVFS was valuable in clarifying the role of veterans' PTSD in explaining how Vietnam War experiences affect spouses/partners, other mediators are possible and could be explored by future research.

## 8. What are the implications of the findings?

The VVFS confirms that there are long-standing effects of Vietnam War service for the spouses/partners of Australian Army veterans. It has provided evidence of adverse consequences more than 40 years after the war ceased, with the main areas affected being spouses'/partners' mental and physical health and couple relationships. There were also some socio-economic disparities, with spouses/partners of Vietnam veterans tending to fare less well in this area. While it might seem that the war was waged a very long time ago and effects should have dissipated, our study shows that they still remain.

These findings have several implications for policy and practice. First, there is likely to be a continuing need for government services and supports for Vietnam veterans and their spouses/partners, especially if veterans are suffering with PTSD. The areas in which there is likely to be the greatest need are services targeting mental health and couple relationships. While the VVFS data cannot determine the length of time that services may be required in the future, the fact that needs remain more than 40 years after the war suggests that they will be ongoing.

Second, when Vietnam veterans' spouses/partners seek assistance, professionals and service providers should be mindful of the possible presence of stressors arising from veterans' Vietnam War experiences, especially the deleterious effects of veterans' PTSD. Unless these are addressed, problems such as mental health or couple relationship difficulties will be more difficult to remediate. Additionally, a broader range of services may be required to target the stressors from Vietnam War experiences as well as the presenting problem (if it is different).

A third implication stems from the finding that the major way in which Vietnam War experiences affected spouses/partners was through its role in instigating PTSD in veterans. Little was known about PTSD at the time of the Vietnam War. In fact, it was first recognised as a distinct disorder with its own unique features and treatments in 1980 in the American Psychiatric Association's third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (Crocq & Crocq, 2000). A likely consequence of the relatively late recognition of PTSD as a disorder is that, up until this time, Vietnam veterans' PTSD symptoms may have been downplayed or incorrectly diagnosed, and may not have received the specialised attention necessary for their remediation. Their PTSD may therefore have become more serious and entrenched than if it had been identified early, and may have had more profound effects on spouses/partners.

There are several learnings that can be taken from the findings about the very long-term effects of veterans' PTSD. These may also be of benefit for later generations of veterans. The VVFS points to the importance of providing preventative supports and early intervention services for servicemen returning from war or from peacekeeping missions to inhibit the onset of PTSD, especially given the long-term effects found here. This would likely involve regular monitoring to detect those with early PTSD symptoms; for example, through check-ups or awareness raising. Services would need to be responsive so that servicemen can be helped early, before symptoms become severe. Ongoing services will also be needed for those suffering the full effects of PTSD. The findings suggest that provision of these services will likely benefit spouses/partners as well.

Considerable knowledge now exists about the most effective treatments for veterans' PTSD. These include cognitive behavioural therapy (CBT), individual and group trauma-focused cognitive behaviour therapy (TF-CBT), and eye movement desensitisation and reprocessing (EMDR) (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013). CBT is a general treatment that is used to treat a range of mental health conditions. It aims to help individuals identify and change maladaptive thoughts and behaviours, help them develop better regulation of emotions, and learn practical self-help skills to deal with their PTSD symptoms (Beck, 2011). TF-CBT is a specialised form of CBT that aims to alter the way individuals think about themselves and the event(s) that precipitated their condition, helping them to avoid distorted and dysfunctional cognitions (Seidler & Wagner, 2006). Eye movement desensitisation and reprocessing seeks to bring trauma-related images, beliefs and body sensations to mind in controlled settings, in order to reprocess memories of the event, replacing negative views with more positive ones (Seidler & Wagner, 2006). Finally, stress inoculation training has been found to be effective. It aims to reduce anxiety by helping PTSD sufferers understand the thoughts underlying their anxiety, develop skills and techniques for stress management, and practice these skills to improve their use in real life (Bisson et al., 2013; Brewin, 2003).

The involvement of servicemen's families, especially spouses/partners, in the treatment of servicemen's PTSD can also be beneficial for both servicemen and their families (Galovski & Lyons, 2004; Sherman, Zanotti, & Jones, 2000). A range of treatments is advocated, including family psychoeducation, support groups for both partners and veterans, concurrent individual treatment, and couple or family therapy (Nelson & Wright, 1996). Psychoeducation involves giving individuals an understanding of what PTSD is, how it manifests, and practical strategies to manage it. It is often provided in a group situation, which can encourage mutual support and self-help. Couple and family therapy can be particularly helpful

when servicemen's PTSD is affecting family life and the wellbeing of other family members (Johnson, 2002). For example, Behavioural Conjoint Therapy (BCT), which is provided alongside CBT, has been found to lead to improvements in veterans' PTSD and couple relationship quality. BCT involves veterans and their spouses/partners, and aims to increase positive interactions, communication and interpersonal problem-solving skills (see the reviews by Dekel & Monson, 2010 and Monson, Taft, & Fredman, 2009).

The last major implication that can be taken from the VVFS is the valuable role played by military-related services in assisting spouses/partners. Access to these services was found to substantially reduce the impact of veterans' PTSD on spouses'/partners' physical health. It was interesting that access to more general health services did not provide the same benefits; therefore, it seems likely that the military-related services had a deeper understanding of the issues that spouses/partners were encountering and knowledge of the strategies that were likely to be most effective. Two corollaries can be taken from these findings: first, these services seem to have made a difference and appear to be doing a good job. Second, it is important that they continue to be provided in the future, not only for Vietnam veterans and their families but for servicemen involved in more recent conflicts, as their families could also be expected to have the long-term needs identified here.

Summing up, the VVFS has provided valuable new Australian evidence about the long-term effects of service in the Vietnam War on the spouses/partners of army veterans. While many spouses/partners were faring well, effects of veterans' Vietnam service remained evident into late mid-life and older age, especially if veterans were suffering with PTSD.

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