Australian Government
Department of Veterans' Affairs

Timor-Leste Family Study 2012

TECHNICAL REPORT

The University Of Queensland
AUSTRALIA

CMVH
CENTRE FOR MILITARY & VETERANS' HEALTH

Front cover photographs,
clockwise from top-left:

• Sapper Todd Snowden from 1 Combat Engineer Regiment, is greeted by his girlfriend Courtney at RAAF Base Darwin, on his arrival home from operations in East Timor.

• PTE Chris Wetherell, 2/17 Royal NSW Regiment Sydney, with wife Lee, daughter Madison and baby Harry following the Timor-Leste Task Group 3 farewell parade.

• CAPT Daniel Strack enjoys time with his five month old son, William at the Timor-Leste Task Group 4 family day during pre-deployment training at Puckapunyal.

• Commanding Officer of *HMAS Kanimbla* Commander Bannister with his family after Operation Astute duties in East Timor.

Images courtesy
Department of Defence.

TIMOR-LESTE FAMILY STUDY: TECHNICAL REPORT

September 2012

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The Hon Warren Snowdon MP
Minister for Veterans' Affairs
Minister for Defence Science and Personnel
Minister for Indigenous Health
Minister Assisting the Prime Minister on the Cententary of Anzac
Parliament House
CANBERRA ACT 2600

Dear Minister

It is with pleasure that I present to you the final report of the *Timor-Leste Family Study*. This study investigated the impact of deployment to Timor-Leste between 1999 and 2010 on the physical, mental and social health of Australian military families.

This research, undertaken by The University of Queensland, Centre for Military and Veterans' Health (CMVH), is the first study to be completed as part of the Family Study Program for the Department of Veterans' Affairs (DVA). In August 2007, the Australian Government announced the establishment of the DVA Family Study Program. This ongoing research program aims to assess the impact of military service on the health and wellbeing of the families of deployed Australian Defence Force personnel. The Timor-Leste Family Study is the first of its kind in Australia.

I would like to thank the study team at CMVH, led by Dr Annabel McGuire, for its dedication in delivering these research findings. I would also like to thank the members of the Scientific Advisory Committee for their expertise and the members of the study's Consultative Forum for their continued guidance, insight and commitment to the study. Finally, I would like to express my gratitude to all study participants for their valuable contribution to this research.

Yours sincerely

Mark Kelly AO DSC
Major General
Repatriation Commissioner
Chair, Timor-Leste Family Study Consultative Forum

31 August 2012

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Major General Mark Kelly AO DSC
Repatriation Commissioner
Chair, Timor-Leste Family Study Consultative Forum
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Dear Major General Kelly

I am pleased to provide you with copies of the *Technical Report* and the *Summary Report* of the *Timor-Leste Family Study*, commissioned by the Department of Veterans' Affairs and completed by The University of Queensland, Centre for Military and Veterans' Health. The Family Study Program Scientific Advisory Committee has endorsed these reports. The *Timor-Leste Family Study* draws on information provided by over 4,000 participants, encompassing past and current members of the Australian Defence Force and their families.

Yours sincerely

Professor Bryan Rodgers
Chair, Scientific Advisory Committee
Family Study Program

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Acknowledgments

The Australian Government Department of Veterans' Affairs commissioned the Centre for Military and Veterans' Health to conduct the Timor-Leste Family Study.

The study was made possible through the participation of current and past members of the Australian Defence Force and their families. The study team thanks the study participants for sharing their information and telling their stories.

Completion of the study involved the work of a large team, and the authors acknowledge with appreciation the contribution of many individuals and groups:

- **Department of Veterans' Affairs**
  Bill Bowe, Program Manager; the Scientific Advisory Committee; and the Consultative Forum

- **Centre for Military and Veterans' Health**
  Professor Peter Warfe, Director; past members of the Timor-Leste Family Study team (Researcher Officers Tegan Cosgrove and Elliroma Gardiner); the telephone team led by Sandra Kumskov; Dr Eva Pietrzak; and Alison Mackenzie

- **Military Health Outcomes Program**
  The investigators who shared data from participants who consented to data linkage between the program and the Family Study

- **Veterans and Veterans Families Counselling Service**
  Lyla Coorey, Deputy Director, NSW; Bernie Brown; and Anita Hansen

- **Defence Families of Australia**
  Julie Blackburn, National Convenor (since 2010); Nicole Quinn, National Convenor (2007 to 2009); Amita Tandukar, National Communications Officer; and Defence Families of Australia national delegates

- **Defence Community Organisation**
  Michael Callan, former Director General; and staff in Brisbane, Ipswich and Sydney

- **Department of Defence**
  Brigadier Stephan Rudzki and Colonel Stephanie Hodson.

Summary

In July 2009 the Department of Veterans' Affairs commissioned The University of Queensland, Centre for Military and Veterans' Health, to conduct research into the health and wellbeing of the families of Australian Defence Force personnel deployed to Timor-Leste from 1999 to 2010. This report is the culmination of the work done in response.

During 2010 the Timor-Leste Family Study team, in conjunction with the DVA Family Study Program's Scientific Advisory Committee, developed a comprehensive and scientifically sound methodology for conducting the research. Development of the methodology took account of material gained from focus groups and interviews, and the result was piloted to test systems and processes. Once refined, the questionnaire that had been prepared was completed by more than 4,000 serving and ex-serving ADF members and partners of members. Without the generous contribution of the ADF members and their partners this report could not have been brought into the public domain. The Timor-Leste Family Study team sincerely thanks all concerned.

There are currently about 30,000 recognised partners of ADF members and more than 18,000 children under the age of 18 years in their care. The health and wellbeing of these family members is of concern to a wide range of individuals, organisations and policy makers who represent their interests. The aim of this report is to inform this community about the best ways of identifying and protecting family members who might be at risk of adverse health effects associated with deployment. Healthy families and healthy family relationships are associated with healthy serving members and contribute to the serving members' retention, readiness and morale.

Research findings from other countries are not necessarily always applicable to the Australian context, so conducting scientifically sound, transparent and well-funded research is imperative. This technical report offers a detailed examination of the research process, the analysis of data and the research findings and identifies some knowledge gaps.

The study's development and method are explained in detail in Chapters 2 and 3. The research process involved a literature review, a review of previous research, a workshop, qualitative research, a pilot study and a large quantitative study. Guiding the study team at all times were the two research aims proposed by DVA, as follows.

Research aim 1

To determine what, if any, physical, mental, or social health impacts there are on a service member's family from the member's deployment to Timor-Leste.

Hypotheses related to research aim 1

1. There will be a difference between the partners of ADF members who were deployed to Timor-Leste and those who were not deployed to Timor-Leste on measures of physical, mental, and family health.

2. There will be a difference between the children of ADF members who were deployed to Timor-Leste and those who were not deployed to Timor-Leste on a measure of emotions and behaviour.

Research aim 2

To identify any risk and protective factors associated with any health impacts.

Hypotheses related to research aim 2

1. For the partners and children of ADF members, there will be associations between deployment frequency and health impacts.

2. For the partners and children of ADF members, there will be associations between identified risk and protective factors (excluding deployment frequency) and health impacts.

3. There will be associations between an ADF member's physical, mental, and family health and their current partner's physical, mental, and family health.

4. There will be associations between an ADF member's physical and mental health and their child's emotional and behavioural health.

5. There will be associations between an ADF member's physical and mental health, their partner's physical and mental health, and their child's emotional and behavioural health.

These aims were researched using a number of standardised, scientifically validated measures of physical, mental and family health. In total, 1,332 partner participants—approximately half in the Timor-Leste group and half in a comparison group—provided questionnaire responses for analysis. This represents a response rate of about 37 per cent of all those approached to take part in the study; such a rate is favourable compared with the rates for other primary research involving serving personnel. The data collected from participants were analysed in relation to deployment to Timor-Leste only and in relation to total deployment experience.

The design of the study meant that it was not possible to determine the direction of the relationship between a particular factor and a measure of health. In interpreting the results, it is important to remember the cross-sectional nature of the research (where measurement is taken at one specific time) and that risk and protective factors can exacerbate or ameliorate effects associated with military life for members, partners and children.

It is also important to understand that recall of a particular experience can be affected by a participant's mood at the time of completing the questionnaire. People who are depressed or have other mental health problems might perceive and report their experiences more negatively than other people who had the same experience but are free of mental health problems.

The results of the research were not always consistent with the expected outcome suggested by the hypotheses.

Outcomes for partners and children of Timor-Leste veterans: research aim 1

The outcomes for the partners of Timor-Leste veterans were compared with those for partners of ADF members who did not deploy to Timor-Leste. The results show that on all measures of physical, mental and social health the partners and children of Timor-Leste veterans were no more likely than those in the comparison group to experience physical, mental or family ill-health. In addition, the majority of individuals had results that fell within the normal or healthy range in relation to measures of smoking, alcohol consumption, pregnancy outcomes and child behaviours.

Deployment frequency as a risk factor: research aim 2

Chapter 6 reports the results of data analysis for research aim 2 in connection with the potential risk and protective factors of deployment frequency. The analysis shows that, for partners, the number of deployments was not associated with physical, mental or family ill-health.

The only statistically significant outcome reported for partners was that those who rated the Timor-Leste deployment negatively also reported poorer outcomes in relation to physical and mental health and relationship satisfaction.

The number of deployments was, however, associated with negative effects for children. Children who had a parent who had deployed two to five times were statistically more likely to exhibit negative behavioural health than children with a parent who had never deployed. There was no statistically significant difference in outcomes between children whose parent had deployed once and those whose parent had never deployed. There was also an association between increasing numbers of deployments and an increase in reported behavioural problems. Nevertheless, the absolute number of children experiencing problems was not large—at between 5 and 12 per cent.

Other risk factors: research aim 2

Chapters 7 and 8 also deal with research aim 2. They look at whether risk and protective factors other than deployment frequency are associated with health outcomes for families and assess whether the overall health of an ADF member is associated with their family's health and functioning. Again, the cross-sectional nature of the study meant that the direction of causation is not certain.

Low scores on family functioning, the type of coping style adopted by the partner (emotion focused as opposed to problem focused) and exposure to intimate partner violence—all potential risk factors—were associated with poorer outcomes in terms of several measures of mental health for partners. On the other hand, the quality of the partner's relationship and their ability to make use of social and formal support networks were found to be protective against symptoms of poor mental health for partners and protective against negative emotions and behaviours for children. These associations were statistically significant.

When data on physical and mental health measures were matched between ADF members and their partners, the results showed that most couples were satisfied with their relationship. There was, however, a consistent and strong relationship between an ADF member's mental health and their partner's mental health: negative mental health outcomes for ADF members were associated with poorer outcomes for their partners.

This negative association was found to be passed on to the child (or children) through the partner parent: when the partner parent reported poor mental health, children were also reported as being at increased risk of emotional and behavioural problems.

What do the results tell us?

When compared with the findings in the literature, not all the study's findings were expected, which lends support to the premise that international research might not always be applicable to the Australian context.

On the whole, the study results are positive and encouraging for Australian families of current and past ADF members. The physical and mental health of the families of those members who deployed to Timor-Leste was robust when compared with that of the comparison group, suggesting that the former group are resilient in the face of deployment challenges.

The positive results on measures of health were consistent for multiple deployments. This could be indicative of a 'healthy families' effect, whereby those families that are able to manage well the deployment of one parent are more likely to remain in the military and therefore undergo further deployment.

What remains uncertain is how much of an effect deployment has on subjective assessments of health. The data suggest it is possible that partners and children are experiencing difficulties not detected by the current research. For instance, those who rated the Timor-Leste deployment more negatively reported worse physical and mental health, and as the number of overall deployments increased more partners reported a negative effect on relationship satisfaction. Furthermore, the most difficult aspect of deployment reported by partners is one that is difficult to change—the physical absence of the deployed person.

The results for research aim 2 provide a wealth of data relevant to policy and practice. It appears that the mental health of partners and the emotional and behavioural health of children are affected by the mental health of the serving member.

1 Introduction

Australian Defence Force members deployed to an operational area are often exposed to risks beyond those experienced in everyday living. Their families' lives are changed by both their absence and an awareness of the risks involved. This study focused on understanding the impact of these changes on the physical, mental and family health of military families, using the Timor-Leste deployment as an example. Understanding these impacts will allow policy makers to better support the past, present and future families of deployed ADF personnel.

Considerable international research into the effects of deployment on military families first appeared after the Gulf War of 1990 to 1991 and burgeoned after the Middle East deployments that began in 2001. Studies of the longer term effects of Vietnam War deployments on military families are also increasingly being reported. Broadly, the studies have found that deployment decreases the emotional wellbeing of spouses and children. Positive effects are also identified, however, among them increased independence for spouses and closer spousal relationships. Just how representative the international findings are of Australian military families is unclear, though, because of differences in each country's military service and social demographics.

In August 2007 the Department of Veterans' Affairs set up the Family Study Program in order to assess the impact of service on the health and welfare of the families of deployed ADF personnel. It was through this program that the Department commissioned the Timor-Leste Family Study, which used a large random sample to examine the effects of deployment to Timor-Leste on the physical, mental and family health of Australian military families. Operations in Timor-Leste began in 1999 and since then more than 20,000 personnel have deployed there (Australian Peacekeeper & Peacemaker Veterans' Association 2010). At the time of preparation of this report 380 ADF personnel were deployed to Timor-Leste (Department of Defence 2012a).

The Timor-Leste Family Study is retrospective and cross-sectional and generated data from self-report questionnaires completed by serving and ex-serving ADF members and their partners. The design of the study means that it is not possible to infer causation from the findings; that is, it is not certain that one thing caused another, only that there is an association between them. The analytical methods used throughout the report are described in Chapter 4. A Scientific Advisory Committee and a Consultative Forum from the Family Study Program provided guidance on the development and conduct of the study.

This report outlines the study background, aims, development, methods, results, discussions and conclusions.

ADF operations in Timor-Leste, 1999 to 2010

Timor-Leste is a democratic republic lying north-west of Australia, at the eastern end of the island of Timor in the Indonesian archipelago. As noted, ADF operations in the country began in 1999 and are continuing.

In June 1999 the United Nations established a mission in East Timor, UNAMET, to supervise the August independence referendum. ADF Operation FABER supported UNAMET through the deployment of six members (Australian Peacekeeper & Peacemaker Veterans' Association 2010). The majority vote for Timor-Leste's independence as opposed to Indonesian integration provoked a mass campaign of pro-integration militia violence. In response to the violence, the Australian Government, with a UN mandate and strong support from the Australian public, initiated the ADF-led International Force for East Timor, or INTERFET.

Operations WARDEN, SPITFIRE, STABILISE and FABER were the ADF contributions to INTERFET. The ADF's task was to restore peace and security in Timor-Leste and to facilitate humanitarian assistance operations. INTERFET ended in February 2000 and was replaced by Operation TANAGER, which involved the deployment of an ADF battalion group to prevent insurgencies on Timor-Leste's western border and concluded when Timor-Leste achieved nationhood on 20 May 2002. (Nationhood saw the name East Timor changed to Timor-Leste.)

Operation CITADEL, a three-year infantry deployment, took place from nationhood until 2005. Operations SPIRE and CHIRON were small ADF contributions to the UN effort between 2004 and 2006. An outbreak of rebel violence in May 2006 resulted in the Timor-Leste Government asking for international peacekeepers. Operation ASTUTE is Australia's ongoing contribution to the ADF-led International Stabilisation Force. Operation TOWER, a small contribution to the UN Integrated Mission in Timor-Leste, also continues.

The Timor-Leste deployments were of three to seven months' duration (Australian War Memorial n.d.) and included both warlike and non-warlike operations.[*] Operations STABILISE, WARDEN and TANAGER were warlike, whereas Operations SPITFIRE, SPIRE and CHIRON were non-warlike. Operations FABER and CITADEL had both warlike and non-warlike periods. The continuing operations are non-warlike.

As noted, more than 20,000 current and ex-serving ADF members (the majority from the Australian Army) have deployed on one or more of the ten operations (Australian Peacekeeper & Peacemaker Veterans' Association 2010). Four

[*] Warlike operations are military activities where the application of force is authorised in order to pursue specific military objectives and there is an expectation of casualties. Non-warlike operations are military activities where there is risk associated with the assigned tasks and where the application of force is limited to self-defence.

soldiers have died in-country to date, all from non–combat related causes (Australian War Memorial n.d.).

The Timor-Leste deployments represent the largest deployment of ADF members since the Vietnam War. In recognition of the impact of these deployments on the members' families, the Department of Defence established the National Welfare Coordination Centre in 1999. The centre provides 24-hour information and referral services for families of deployed members. The Timor-Leste deployments were, and are, generally viewed positively in the ADF, Australia and overseas.

Other ADF operations, 1999 to 2010

Excluding Timor-Leste, the ADF deployed members to 13 different overseas operational areas between 1999 and 2010 (Australian Peacekeeper & Peacemaker Veterans' Association 2010). The largest of these deployments have been the several operations in Afghanistan (from 2001) and in Iraq (2003 to 2011) and the peacekeeping operations in Bougainville (1997 to 2003) and in Solomon Islands (from 2003). ADF members have deployed on a number of UN and other international missions, such as the NATO force in the former Yugoslavia, the Multinational Force & Observers in the Sinai, and the UN Truce Supervision Organization in the Middle East.

ADF members have also been deployed for numerous humanitarian responses to natural disasters, both overseas (for example, Operation Sumatra Assist in response to the 2004 Indian Ocean tsunami) and in Australia (for example, Operation Vic Fire Assist in response to the 2009 Victorian bushfires). Royal Australian Navy members have also been deployed on Operation RESOLUTE in Australia's Exclusive Economic Zone, providing border and maritime protection since 2006.

Research aims and hypotheses

The Department of Veterans' Affairs Family Study Program directed the Timor-Leste Family Study team to investigate two research aims, as follows.

Research aim 1

To determine what, if any, physical, mental, or social health impacts there are on a service member's family from the member's deployment to Timor-Leste.

Interpretation

The study team defined a member's family as the member and their current partner and/or their former partner(s) and children living with those current and/or former partner(s). A partner is defined as a spouse, a person in a de facto relationship or a person in a long-term relationship with the member. A member's deployment to Timor-Leste is defined as any deployment to Timor-Leste with the ADF between 1999 and 2010, as recorded in the Department of Defence Human Resources system.

Hypotheses related to research aim 1

1. There will be a difference between the partners of ADF members who were deployed to Timor-Leste and those who were not deployed to Timor-Leste on measures of physical, mental, and family health.

2. There will be a difference between the children of ADF members who were deployed to Timor-Leste and those who were not deployed to Timor-Leste on a measure of emotions and behaviour.

Note. The study team changed the term 'social health' in research aim 1 to 'family health' in hypothesis 1 in order to promote the concept of the family as a unit of health and so that 'social health' would not be confused with the risk and protective variable of social support.

Research aim 2

To identify any risk and protective factors associated with any health impacts.

Interpretation

The study team examined the literature seeking information about risk and protective factors for military families' health. Risk and protective factors can exacerbate or ameliorate effects associated with military life for partners and children. Some factors may can both a risk factor and a protective factor; for example, social support is a protective factor but an absence of social support is a risk factor. Health impacts are defined as any health differences, positive or negative, for partners and children of ADF members.

Hypotheses related to research aim 2

1. For the partners and children of ADF members, there will be associations between deployment frequency and health impacts.

2. For the partners and children of ADF members, there will be associations between identified risk and protective factors (excluding deployment frequency) and health impacts.

3. There will be associations between an ADF member's physical, mental, and family health and their current partner's physical, mental, and family health.

4. There will be associations between an ADF member's physical and mental health and their child's emotional and behavioural health.

5. There will be associations between an ADF member's physical and mental health, their partner's physical and mental health, and their child's emotional and behavioural health.

Ethical approval

In order to conduct the Timor-Leste Family Study ethical approval from three Human Research Ethics Committees was required: the Department of Veterans' Affairs HREC, the Australian Defence HREC, and the University of Queensland Behavioural and Social Sciences Ethical Review Committee. The study was divided into three phases, and separate approval was sought for each phase, as shown in Table 1.1. The approvals are presented in Appendix A, which also lists the members of the DVA Scientific Advisory Committee and the Consultative Forum.

Table 1.1 Human Research Ethics Committees' approvals

Study phase	DVA HREC reference number	ADHREC reference number	UQ BSSERC reference number
1. Development of the nominal roll (the contact details for the ADF member sample)	E009/024	576/10	2010000162
2. Qualitative research	E009/024	577/10	2010000163
3. Self-report questionnaire	E010/002	578/10	2010000621

2 Study development

A number of activities helped the study team to develop the content and process of the research—a literature review, a review of previous research, a development workshop, qualitative research, and a pilot study.

The literature review

In 2007 the Centre for Military and Veterans' Health produced a DVA-funded research protocol for investigating the intergenerational health effects of service in the military. A systematic literature review, which formed part of the protocol, examined the evidence for effects of military service on spouses, children and family functioning.

This review was updated in 2009 to focus specifically on the effects of deployment. Four main themes were identified:

- effects on children's mental wellbeing and child maltreatment rates
- effects on the health and wellbeing of spouses
- deployment-related intimate partner violence
- secondary traumatisation of the spouses of veterans affected by Posttraumatic Stress Disorder.

The review results helped the study team develop the content of the qualitative research and the self-report questionnaire.

The Intergenerational Health Effects of Service in the Military: literature review (2007) is available on the DVA website (www.dva.gov.au). A summary of the 2009 Timor-Leste Family Study literature review is presented here as Appendix B.

The review of previous research

The East Timor Health Study

The East Timor Health Study (McGuire et al. 2009b), conducted as part of the Centre for Military and Veterans' Health's Deployment Health Surveillance Program, investigated the health of ADF veterans who deployed on Operations FABER, SPITFIRE, WARDEN, TANAGER, CITADEL and SPIRE. The design was retrospective and cross-sectional, and the study compared the health of those who deployed on the named operations with frequency-matched veterans who did not. Data were collected from self-report health and deployment questionnaires, ADF health records and psychological screening, and mortality and cancer registries. It is important to note that the Timor-Leste Family Study

did not repeat the East Timor Health Study of veterans but focused instead on outcomes for families associated with the same deployments.

The East Timor Health Study found no statistically significant differences in psychological distress, physical symptoms, health behaviour, and mortality and cancer incidence between the East Timor and comparison groups. Deployed personnel did, however, report more symptoms. The majority of the veterans (64 per cent) were married, and approximately 60 per cent had children (with an average age of 12 years in 2009). These demographics helped the Timor-Leste Family Study team with developing content for the self-report questionnaire, in which questions about marital satisfaction and older children were included. The *East Timor Health Study Project Completion Report* is available on the Centre for Military and Veterans' Health website (www.cmvh.org.au).

The first survey of Australian Defence Force families

The Defence Community Organisation conducted the first survey of ADF families in 2009. The sample included all partners of permanent ADF members, and the survey asked partners about deployment experiences, the reactions of children to parental absence, perceived support of families by Defence, the demands of service life, and their own employment experiences. The survey found a link between conditions of service (for example, relocations and long periods of absence) and work–family conflict.

The Timor-Leste Family Study team reviewed the content of the survey to isolate clear points of difference between the two studies. The Timor-Leste Family Study focuses on physical, mental and family health outcomes and uses scientifically validated measures (described in Chapter 3).

The *First Survey of Australian Defence Force Families General Report* is available on the Department of Defence website (www.defence.gov.au).

The development workshop

The Timor-Leste Family Study team held a development workshop with a variety of stakeholders and consultants in order to help refine the study design and content. Members of the DVA Family Study Program, the Department of Defence, and veteran and family support services, as well as academics, attended. The study team provided a background paper and a draft protocol for critical comment.

The workshop resulted in the refinement of the research aims and confirmation of the study sample, which consisted of ADF members who had deployed to Timor-Leste and their partners and ADF members who had not deployed to Timor-Leste and their partners. Those present agreed that the direct involvement of parents and children of ADF members in the study, while a worthy goal, would pose ethical difficulties and be beyond the reasonable scope of the first Australian study of this type.

Workshop participants also noted the unique opportunity the study presented for detecting risk and protective factors for families who had experienced deployment. Social support, coping and family functioning were identified as factors that should be examined. Participants particularly endorsed the inclusion of questions about the identification, use and effectiveness of support services.

Qualitative research

Between May and August 2010 the study team conducted four focus groups and four individual telephone interviews with current partners (and one former partner) of serving and ex-serving ADF members. This resulted in personal accounts from partners of ADF members who had been on a deployment, assisted with the development of the self-report questionnaire, and publicised the study to military families.

Twenty-one females aged between 20 and 52 years (17 in the focus groups) voluntarily participated in the qualitative research and identified health impacts on their families resulting from their partner's ADF deployment. For some of these families the impacts were short-lived; for those with impacts related to mental health the effects were enduring. The participants noted that social support was an important factor in reducing adverse health impacts arising from deployment.

The participants also explained that how long they had been with their ADF member partner at the time of a deployment and the presence, number and age of their children during a deployment greatly influenced how they experienced the separation. This insight resulted in inclusion in the questionnaire of questions about relationship length and whether a respondent was with their ADF member partner during a particular deployment. Additionally, the questionnaire asked about the number and age of children living in the household.

Appendix C presents a summary of the qualitative research report that was delivered to the Department of Veterans' Affairs.

The pilot study

A pilot study testing all questionnaire administration and participant tracking processes was conducted between November 2010 and February 2011. One hundred ADF members and 70 partners were invited. Twenty volunteers contacted the study team after learning about the study via the study website or promotional material; these people were also included.

The pilot study found that ADF members completed their questionnaire at a higher rate than did their partners. A lower completion rate for both the partner and ADF member comparison groups had been expected. In all, though, the numbers were too small for tests of significance.

The pilot study confirmed that the procedure of telephoning individuals who had not responded to their invitation or reminder (referred to as 'phone follow-up') was essential for encouraging and facilitating participation. A number of participants, however, did not receive phone follow-up because of time constraints.

The study results led to refinement of the questionnaires—for example, changes to phrasing and re-ordering of question sets—and revised estimates of the number of staff and time required for phone follow-up. Appendix D presents a summary of the pilot study.

3 Sample, method and response

As noted, the Timor-Leste Family Study used a retrospective, cross-sectional study design to compare the physical, mental and family health of families of ADF members who deployed to Timor-Leste with those attributes of a comparison group of families of ADF members who did not deploy to Timor-Leste.

Sample

ADF members

The Centre for Military and Veterans' Health developed nominal rolls (listings of names, demographic details, and contact details) for all ADF members who deployed to Timor-Leste between 1999 and 2010 and all members who did not deploy to Timor-Leste in the same period. Individuals on the comparison nominal roll were frequency matched to those on the Timor-Leste roll by sex and Service.

The study team selected members who were listed as being in a relationship and aimed to randomly sample 4,000 members from each roll to create the Timor-Leste sample and the comparison sample. The random sample, however, incorporated both proportional and oversampling of certain groups. Proportional sampling occurred in the case of participants in another study, the Centre for Military and Veterans' Health Military Health Outcomes Program, which was conducted at the same time as the Timor-Leste Family Study.

The Military Health Outcomes Program

MilHOP is a Defence-funded program of studies examining the health and wellbeing of serving and ex-serving ADF members. The aim is to learn about the types of health problems and related symptoms that are relevant to ADF members in order that Defence can better respond to such problems in the future. MilHOP takes in the Health and Wellbeing Study, the Middle East Area of Operations (MEAO) Health Study, the MEAO Prospective Study, and the MEAO Health Study: Mortality and Cancer Incidence Studies.

In an effort to avoid overburdening ADF members with studies, the Centre for Military and Veterans' Health decided, in consultation with the Departments of Veterans' Affairs and Defence, to create links between the participants in the Timor-Leste Family Study and those in MilHOP. This involved ADF members who were part of the two studies being able to consent to the following:

- linking of their MilHOP data with the Timor-Leste Family Study so that their participation in the Family Study involved completing only 10 questions

- allowing CMVH to use the nominal roll contact details of their partner to invite their partner to participate in the Family Study. (Partner contact details provided to Defence may be used only with permission of the ADF member; this permission allowed CMVH to contact partners directly.)

Because the MilHOP 'consenters' were more likely to be currently serving permanent members, proportional sampling also occurred for serving and ex-serving members so as to reflect the actual size of the serving and ex-serving Timor-Leste veteran populations (75 per cent serving; 25 per cent ex-serving).

Female ADF members and members from the Royal Australian Navy and the Royal Australian Air Force were oversampled because these groups are small compared with male ADF members and numbers in the Australian Army respectively. Compared with the rest of the military population, Army males were more frequently deployed to Timor-Leste. Oversampling from these groups allowed sufficient power to detect any differences in the analyses that were based on either sex or Service.

The target of 4,000 ADF members per sample was not reached because there were insufficient numbers in the groups that were oversampled—for example, female RAAF officers who had deployed to Timor-Leste.

Partners

The Timor-Leste Family Study's Human Research Ethics Committees granted approval for the study to contact the partners of ADF members and invite them to participate if the ADF member agreed. CMVH obtained ADF member agreement through consent forms. For MilHOP respondents who consented to partner contact, the Family Study team mostly had partner contact details from the nominal rolls. For non-MilHOP respondents (and MilHOP respondents whose partner contact details were not in the nominal rolls), the team obtained partner contact details by asking the ADF member to provide their partner's details on their Family Study consent form if they wished to. Figure 3.1 summarises the sampling process.

	Timor-Leste sample (no.)	Comparison sample (no.)
Nominal roll	27,083	15,300
Listed as in a relationship	23,095	11,000
Random sampling incorporating proportional sampling of serving/ex-serving MilHOP participants and an oversampling of female ADF members and RAN and RAAF members		
ADF member sample	3,867	3,885
Partner sample	1,924	1,910

Figure 3.1 The sampling process

Reasoning for the sample size

The target of 4,000 ADF members in each of the Timor-Leste and comparison samples was based on an assumption of the minimum participation required by partners and ADF members (25 per cent) and a sample size requirement of 1,000 ADF member–partner pairs. This sample size was calculated to have adequate statistical power to detect a range of differences in health outcomes between the two equal-sized groups using population baseline health outcome for small and large differences in outcomes between the Timor-Leste and comparison partners. For example, the 2004–05 National Health Survey (Australian Bureau of Statistics 2006) found that nine per cent of females aged 25–44 years reported fair or poor general health. Assuming that comparison partners' reported health was similar to the ABS national findings and the study achieved a 25 per cent participation rate in both partner groups, the study would have 98 per cent power (strong) to detect an absolute difference of 6 per cent between Timor-Leste and comparison partners.

Method

Data sources

The study obtained data from two sources: the nominal rolls and the self-report questionnaire. The data from the nominal rolls covered the ADF members' demographic characteristics—age, sex, rank, Service (Navy, Army or Air Force), service type (currently serving, ex-serving, or reservist)[*] and Timor-Leste deployment history (deployment or no deployment).

The self-report questionnaire assessed physical, mental and family health and risk and protective factors. It also captured additional demographic information. Scientifically validated measures accounted for most of the questionnaire. Not all sample groups received all measures and questions. For example, participants in the Timor-Leste partner sample were asked questions specifically about their experience of Timor-Leste deployment. In contrast, because the study focused on the family perspective, ADF members were not asked a number of questions. Finally, as noted, ADF members who were MilHOP participants and had consented to linking received only 10 questions and had their data from MilHOP incorporated in the Timor-Leste Family Study database.

The following section describes all the measures and questions; Table 3.1 provides an overview of the questions received by each of the sample groups and lists the maximum number of questions.

[*] Note that service type is based on an individual's current service status. Historical information was not available from the nominal rolls. Further, if a historical approach to service type was available it was not clear which point in the individual's service history should be chosen for members of the comparison group.

The self-report questionnaire measures and questions

All measures and questions in the self-report questionnaire were selected for their relevance to an aspect of the research aims. Measure length, the use of such measures in other studies of military populations, and the availability of Australian normative comparisons were also important considerations. Consultation with the study's Scientific Advisory Committee and key stakeholders—particularly the Veterans and Veterans Families Counselling Service—also guided the selection of the measures and questions.

Participants were advised that they did not have to answer every question and that if a question distressed them they should refer to the list of support services provided with their questionnaire.

There were six categories of measures and questions:

- demographic information
- deployment information
- physical health outcomes
- mental health outcomes
- family health outcomes
- risk and protective factors.

Demographic information

Partners were asked about marital status, Indigenous status, personal and family history with the ADF, employment, household composition and education. They were also asked to report the number of children living with them and provide details of each child's birth year and sex.

Deployment information

A set of questions asked partners to list the locations to which or operations on which their ADF member deployed. They were also asked 'How many deployments has your partner been on since you have been together?' and 'Is your partner currently deployed?' ADF members who were not MilHOP participants were asked to list their deployments.

Another set of questions asked about the partner's experience of their ADF member's Timor-Leste deployment and, among other things, sought information about social networks and communication—for example, 'How often did you communicate with your partner when he/she was deployed to Timor-Leste?'

Physical health

Pregnancy outcomes

Pregnancy outcomes were measured using a 10-item scale for partners' responses to questions about the outcomes of all their pregnancies or their ADF member's pregnancies. Among the outcomes listed were 'child born alive' and 'ectopic pregnancy'. For each outcome the partners were asked to note the number of occurrences. The scale was adapted from that used in the East Timor Health Study. An additional question asked whether the partner or their ADF member had visited a doctor to discuss fertility problems.

The Short Form-12v2 Health Survey

The SF-12 (Ware et al. 2002) is a 12-item scientifically validated survey designed to produce a measure of physical and mental health. Responses are provided through Likert scales. An example question is 'How much time during the past 4 weeks have you felt downhearted and depressed?' The SF-12 is used in many health studies; the National Health Survey (Australian Bureau of Statistics 2006) is an example.

The Alcohol Use Disorder Identification Test

The AUDIT (Saunders et al. 1993) is a 10-item scientifically validated test designed to produce a measure for the detection of risky drinking. Questions are asked about alcohol consumption, drinking behaviour and dependence, and the consequences or problems related to drinking. Responses are provided through a Likert scale. An example of the questions is 'How often do you have six or more drinks on one occasion?' The AUDIT was created by the World Health Organization and is widely used.

Smoking

Smoking behaviour was assessed with two questions: 'Over your lifetime have you smoked as much as 100 cigarettes or a similar amount of tobacco?' and 'Do you currently smoke as much as one cigarette per day (or 1 cigar per week or 1 gram of tobacco per month)?' These questions have been used in other studies —for example, the Australian Longitudinal Study on Women's Health (www.alswh.org.au 2012).

Mental health

Kessler-10

The K10 (Kessler & Mroczek 1994) is a 10-item scientifically validated instrument designed to produce a measure of an individual's global level of psychological distress. Individuals rate their level of anxiety and depressive symptoms during the preceding four weeks by reporting the frequency of each experience on a five-point scale ranging from 'all of the time' to 'none of the time'. An example of the questions is 'About how often did you feel depressed?' The K10 is a well-used measure in many studies—for example, HILDA (the Household, Income, and Labour Dynamics in Australia survey) (www.melbourneinstitute.com/hilda/ 2012).

The Posttraumatic Stress Disorder Checklist – Civilian Version

The PCL-C (Dobie et al. 2002; Weathers et al. 1993) is a scientifically validated checklist designed to produce a measure of the symptoms of PTSD that are identified in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association 2000). Individuals rate how much they have been bothered by a problem in the past month by checking a five-point Likert scale ranging from 'not at all' to 'extremely'. An example is 'Trouble falling or staying asleep'. The civilian version is most commonly used in research, even in military populations. Additionally, the MilHOP study used it, and it was important to use the same measure in this study to enable data sharing.

Family health

Family Adaptability and Cohesion Evaluation Scale

FACES-IV (Olson et al. 2006) is a scientifically validated scale designed to produce a measure of family functioning. Sixty-two statements about family members are rated on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. An example statement is 'Family members are very good listeners'. An abridged version of FACES-IV has been used in the US Department of Defense Millennium Cohort Study (www.millenniumcohort.org 2012).

The Work–Family Conflict Scale

The WFC (Netemeyer et al. 1996) is a five-item scientifically validated scale designed to produce a measure of the impact of work interference on home life. Individuals are asked to rate their agreement with each statement on a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. An example statement is 'The demands of my/my partner's work interfere with my/our home and family life'. The scale has been used in studies of military couples—for example, looking at direct and indirect effects of operational tempo on soldiers and spouses (Adams et al. 2005).

The Strengths and Difficulties Questionnaire

The SDQ (Goodman 2005) is a scientifically validated questionnaire designed to produce a measure of the behaviour and emotions of children aged four to 10 and 11 to 17 years. Individuals rate a series of statements for each child living with them as 'not true', 'somewhat true' or 'certainly true'. The statements relate to emotional symptoms, conduct problems, hyperactivity and inattention, peer relationship problems, and prosocial behaviour (behaviour aimed at helping others). The impact supplement was also used in the Timor-Leste Family Study. It asks questions about the impact of any reported problems. An example question from the supplement is 'Do the difficulties upset or distress your child?'. The SDQ is used in the Longitudinal Study of Australian Children (www.aifs.gov.au/growingup/ 2012).

Risk and protective factors

Relationship satisfaction

Relationship satisfaction was measured by three questions exploring consideration of divorce or separation, satisfaction with the marriage or

relationship, and the impact of military commitments on the family. An example question is 'Have you or your spouse/partner ever seriously suggested the idea of divorce or permanent separation within the last year?' Similar questions are included in the HILDA survey (www.melbourneinstitute.com/hilda/ 2012).

Sources of support: Timor-Leste deployment

Twelve questions measured the availability and use of and satisfaction with services and social networks. Services included those associated with Defence (for example, the Defence Community Organisation) and those available in the general community (such as a general practitioner). Partners were asked to rate how helpful services and networks were while their ADF member was away, on a scale of 'not helpful' to 'quite helpful' or to note that they 'did not use this resource' or 'resource was not available OR did not know about this resource'.

The Brief COPE

The Brief COPE (Carver 1997) is a scientifically validated instrument designed to produce a measure of emotion-focused and problem-focused coping. In this study partners were asked to respond to statements about the coping styles they used for any problems related to their experience as the partner of an ADF member. Responses are provided through a four-point scale ranging from 'none of the time' to 'a lot'. An example statement from this measure is 'I've been criticising myself'. The Brief COPE is currently used in the LASERR Study (the Longitudinal ADF Study Evaluating Retention and Resilience) (Department of Defence 2012b).

The Quality of Relationships Inventory

The QRI (Pierce et al. 1991) is a scientifically validated inventory designed to produce a measure of a partner's perception of relationship support, conflict and depth. It consists of 25 questions that are answered through a four-point Likert scale that ranges from 'not at all' to 'very much'. An example question is 'How often does this person [current relationship] make you feel angry?' The QRI has been used successfully in studies of married and committed couples (Verhofstadt et al. 2006).

The Woman Abuse Screening Tool

The WAST (Brown et al. 2000) is a scientifically validated tool designed to produce a measure of partner abuse. Partners were asked to rate the level of tension in their relationship and the level of difficulty involved in resolving arguments. Six questions required them to respond on a scale ranging from 'often' to 'never'. An example question is 'Do arguments ever result in hitting, kicking or pushing?' Questions similar to those in the WAST are used in the Australian Longitudinal Study on Women's Health (www.alswh.org.au 2012).

Mental health and service use

Partners were asked if they had sought help in the past year for stress or family problems and if they had been unable to fulfil their usual responsibilities for more than a month in the past five years. Those who answered 'yes' were asked to nominate the type of problem (for example, 'anxiety'), whether it was

diagnosed by a doctor, whether they received treatment and, if so, what type of treatment.

Barriers to seeking care

Six items assessed potential barriers to seeking care. On a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree', partners were asked how each of the listed concerns would affect their decision to seek help. An example concern is 'People would treat me differently'. Barriers to care items were sourced from the Millennium Cohort Study (www.millenniumcohort.org 2012).

The Duke Social Support and Stress Scale

The DUSOCS (Parkerson et al. 1990) is a scientifically validated scale designed to produce a measure of the amount of support family and non-family relationships provide. Partners were asked to rate how supportive six types of family members (for example, parents) and four types of non-family members (for example, co-workers) were to them on a scale of 'none' to 'a lot' or 'there is no such person'. The DUSOCS has been used in a number of different studies —for example, in a study of clients of family planning clinics (Rohrer & Young 2004).

Partners' attitudes to the military

Partners' attitudes to the military were measured by means of a three-item instrument rated on a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree' or from 'very high' to 'very poor'. An example item is 'I talk up the Navy/Army/RAAF as a great organisation to be associated with'. This instrument was adapted from the Millennium Cohort Study (www.millenniumcohort.org 2012).

Table 3.1 summarises the measures and question types that the sample groups received.

Table 3.1 Measures and questions received by sample groups

Measures and question types	Maximum questions	Timor-Leste partner	Comparison partner	ADF member
Demographic information	16	✓	✓	✓[a]
Deployment questions	4	✓	✓	✓[a]
Timor-Leste deployment questions	21	✓	X	X
Pregnancy outcomes	11	✓	✓	X
Short Form-12v2 Health Survey	12	✓	✓	✓[a]
Alcohol Use Disorder Identification Test	10	✓	✓	✓[a]
Smoking	2	✓	✓	✓[a]
Kessler-10	10	✓	✓	✓[a]
Posttraumatic Stress Disorder Checklist – Civilian Version	27	✓	✓	✓[a]
Family Adaptability and Cohesion Evaluation Scale	62	✓	✓	X
Work–Family Conflict Scale	5	✓	✓	✓
Strengths and Difficulties Questionnaire	33 (1 child)	✓	✓	X
Relationship satisfaction	3	✓	✓	✓
Sources of support: Timor-Leste deployment	13	✓	X	X
Brief COPE	28	✓	✓	X
Quality of Relationships Inventory	25	✓	✓	X
The Woman Abuse Screening Tool	11	✓	✓	X
Mental health and service use	5	✓	✓	X
Barriers to seeking care	9	✓	✓	X
Duke Social Support and Stress Scale	12	✓	✓	X
Partners' attitudes to the military	34	✓	✓	X

a. Data obtained from the MilHOP study if ADF member had participated in that study and consented to data sharing.

Recruitment

Recruitment of participants involved a three-stage approach that was approved by the ethics committees (see Figure 3.2).

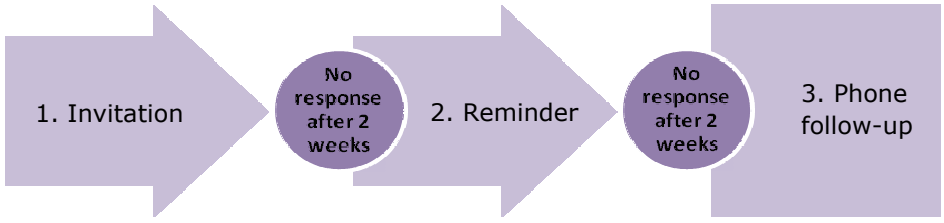


Figure 3.2 The recruitment procedure

Invitations

The majority of ADF members were invited by email because the study team considered this would encourage members to complete their questionnaire online. (The link to the online consent form and questionnaire was provided in the email invitation.) Additionally, email is a speedier and cheaper communication method than post. Email addresses were obtained from the nominal roll. ADF members who did not have an email address listed on the nominal roll were sent an invitation by post.

The partners of ADF members were invited by email or post, depending on what contact information was provided in the nominal roll or by their ADF member. All partners were sent an invitation and a consent form. They were able to decide independently if they wished to participate in the study.

The invitation packages (both online and postal) contained the following:

- an invitation to participate in the study from the chief investigator
- an information sheet
- a consent form
- a letter of support for the study from the DVA Repatriation Commissioner
- a list of support and counselling organisations available to serving and ex-serving ADF members and their families
- the Australian Defence Human Research Ethics Committee's Guidelines for Volunteers.

Reminders

The Timor-Leste Family Study ethical approvals required that the sample not be contacted within two weeks of a previous contact. Individuals from the sample who had not responded (that is, neither consented to nor declined participation) two weeks after their initial invitation were sent a reminder card, by either email or post depending on how they were sent their invitation.

Phone follow-up

The phone numbers of individuals who did not respond to an email or postal reminder were given to a team of trained telephone contact staff. (The phone numbers had been obtained from the nominal rolls.) The phone team were police checked, had signed confidentiality agreements, and did not have access to participants' questionnaire responses.

The phone team discussed the study with individuals to determine whether they had received an invitation and to explain what participation involved. The team particularly encouraged ADF members who were not MilHOP participants to consent to providing their partner's contact details to the study team so that the

number of partners invited to participate (that is, the partner sample) increased. All interactions with individuals were logged following a strict protocol.

Promotional activities

The study team also engaged in promotional activities in order to encourage participation. Articles and posters were placed in Defence and veteran community magazines, newspapers and newsletters and on websites.

Questionnaire administration

Participants could elect to complete their questionnaire online or in hard copy. Ninety-four per cent chose online completion.

The advantage for an online participant compared with a hard-copy participant was that the online questionnaire provided customised questions based on previous responses; that is, some questions were not displayed if previous responses revealed that these questions were not relevant to the participant (this included the child questionnaires).

Hard-copy questionnaires were mailed to participants on request. Two copies of each of the four to 10 years and 11 to 17 years child questionnaires were sent with every hard-copy partner questionnaire. The study team advised partners wishing to complete the questionnaire on paper and who had more than two children in the same age group to contact the team for additional copies. The child questionnaires could also be downloaded on the Timor-Leste Family Study website.

Analysis procedures

Data were analysed using the statistical analysis programs SAS 9.2, Stata 10.0 and SPSS19. Specific analyses were adjusted for age, sex and education status, as well as for Service (Navy, Army or Air Force) and rank (officer or enlisted) to account for differences in demographics between the Timor-Leste and comparison groups when assessing the effects of the Timor-Leste deployment. The demographic variables adjusted for in the analysis were chosen before analysis began; they were chosen on the basis of evidence in the literature. Because of rounding, percentages presented throughout this report might not add to 100.

Response

Participants completed the self-report questionnaire between 16 May 2011 and 16 January 2012. The tables that follow provide information about the recruitment outcomes and the characteristics of participants and non-participants.

Former partners

Former partners of ADF members were included in the study, a version of the partner questionnaire being adapted for them. For example, explanations preceding questions referred to the deployment to Timor-Leste of their former partner (that is, the ADF member). Very few former partners of ADF members participated (*n* = 25), and few ADF members provided their former partner's contact details to the study team. It is not clear whether there were few former partners or whether ADF members were not keen for them to be contacted. Former partners' responses are excluded from the analysis because so few responses mean that there is potential for an individual to be identified.

Recruitment outcomes

Table 3.2 Recruitment outcomes: partner and ADF member samples

	Timor-Leste partner		Comparison partner		Timor-Leste ADF member		Comparison ADF member		Total	
Outcome	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Invited	1,835		1,852		3,867		3,884		11,438	
Participants[a]	**697**	**38.0**	**635**	**34.3**	**1,556**	**40.2**	**1,298**	**33.4**	**4,186**	**36.6**
Non-participants										
Consented only[b]	19	1.0	21	1.1	51	1.3	46	1.2	137	1.2
Declined[c]	149	8.1	197	10.6	453	11.7	676	17.4	1,475	12.9
Did not respond[d]	970	52.9	999	53.9	1,807	46.7	1,864	48.0	5,640	49.3
Total	**1,138**	**62.0**	**1,217**	**65.7**	**2,311**	**59.8**	**2,586**	**66.6**	**7,252**	**63.4**

a. Individuals who completed a questionnaire.
b. An individual who consented to the study but did not start to complete a questionnaire.
c. An individual who either did not consent to the study or asked for no further contact with the study team.
d. An individual who did not reply to their invitation or reminder and was not able to be contacted by telephone.

The number of partners invited increased during data collection since 1,523 ADF members provided to the study team the contact details for their partners. The team had the contact details for 2,164 partners from the ADF members' previous consent to CMVH contacting their partner for the study (see 'Sample', at the beginning of this chapter).

Participants and non-participants

Table 3.3 Characteristics of ADF member participants and non-participants

Characteristic	ADF member participants		ADF member non-participants		
	n	%	*n*	%	*p*-value[a]
Study arm					
Timor-Leste	1,556	54.52	2,311	47.19	<0.001
Comparison	1,298	45.48	2,586	52.81	
Sex					
Male	2,314	81.08	3,935	80.36	0.44
Female	540	18.92	962	19.64	
Age group					
20–29	168	5.89	249	5.08	
30–39	745	26.10	1,751	35.76	<0.001
40+	1,941	68.01	2,897	59.16	
Service					
Navy	573	20.08	980	20.01	
Army	1,685	59.04	2,962	60.49	0.31
Air Force	596	20.88	955	19.50	
Employee status[b]					
Active	2,508	87.88	3,270	66.78	<0.001
Ex-serving	346	12.12	1,627	33.22	
Service type[b]					
Regular/permanent	1,801	63.10	2,412	49.25	<0.001
Reserve	1,053	36.90	2,485	50.75	
Rank[b]					
Commissioned officer	943	33.04	1,251	25.55	
Non-commissioned officer	1,675	58.69	2,550	52.07	<0.001
Other	236	8.27	1,096	22.38	
MilHOP					
Participant	1,569	54.98	1,211	24.73	<0.001
Non-participant	1,285	45.02	3,686	75.27	

a. Chi-square test for association.
b. Data not obtained for all participants.

The nominal rolls allowed differences between ADF participants and ADF non-participants to be identified. Table 3.3 shows that those who had deployed to Timor-Leste, were aged 40 years or more, were active members, permanent members and officers, and were participants in MilHOP were more likely to participate.

Table 3.4 compares participation percentages between Timor-Leste ADF member participants and comparison group ADF member participants. There was a statistically significant difference in age structure (comparison group older) and rank (comparison group higher ranked). There were no statistically significant differences between the Timor-Leste and comparison ADF members in sex, Service, employee status, service type or MilHOP participation.

Table 3.4 Characteristics of Timor-Leste ADF member and comparison ADF member participants

	Timor-Leste ADF member		Comparison ADF member		
Characteristic	***n***	**%**	***n***	**%**	***p*-value[a]**
Sex					
Male	1,248	80.21	1,066	82.13	0.192
Female	308	19.79	232	17.87	
Age group					
20–29	100	6.43	68	5.24	
30–39	473	30.40	272	20.96	<0.001
40+	983	63.17	958	73.81	
Service					
Navy	305	19.60	268	20.65	
Army	906	58.23	779	60.02	0.17
Air Force	345	22.17	251	19.34	
Employee status					
Active	1,375	88.37	1,133	87.29	0.38
Ex-serving	181	11.63	165	12.71	
Service type[b]					
Regular/permanent	988	63.50	813	62.63	0.64
Reserve	568	36.50	485	37.37	
Rank					
Commissioned officer	470	30.21	473	36.44	
Non-commissioned officer	936	60.15	739	56.93	<0.001
Other	150	9.64	86	6.63	
MilHOP					
Participant	866	55.66	703	54.16	0.42
Non-participant	690	44.34	595	45.84	

a. Chi-square test for association.
b. Data not obtained for all participants.

Table 3.5 shows the characteristics of partner participants.

Table 3.5 Characteristics of Timor-Leste partner and comparison partner participants

	Timor-Leste partner		Comparison partner		
Characteristic	***n***	**%**	***n***	**%**	***p*-value[a]**
Sex					
Female	610	87.52	559	88.03	0.78
Male	87	12.48	76	11.97	
Age category					
18–29	69	9.90	50	7.87	
30–39	244	35.01	196	30.87	<0.01
40–49	254	36.44	221	34.80	
50–59	115	16.50	149	23.46	
Education					
Year 10 or below	70	10.04	67	10.55	
Years 11 or 12	127	18.22	115	18.11	0.86
Certificate or diploma	251	36.01	215	33.86	
Bachelor degree or above	237	34.00	226	35.59	
Living status					
Married	599	85.94	571	89.92	
De facto/engaged	79	11.33	51	8.03	0.09
Other	15	2.15	10	1.57	
Total	697		635		

a. Chi-square test for association.

There were no statistically significant differences between the Timor-Leste partners and the comparison partners in relation to sex, education and marital status. There was, however, a statistically significant difference in age structure (comparison group older).

Table 3.6 shows the demographic characteristics of a participating couple; that is, the ADF member and their partner both participated in the study. There were no statistically significant differences between Timor-Leste couples and comparison couples in relation to MilHOP status, relationship status, Service, service status or the number of children. A large number of couples were both serving in the ADF. More than half had been together more than 10 years and most were married.

Table 3.6 Characteristics of participating ADF member and partner couples

	Timor-Leste couples		Comparison couples		
Characteristic	***n***	**%**	***n***	**%**	***p*-value[a]**
Total	543		453		
MilHOP					
ADF member was a participant	338	62.25	296	65.34	0.31
ADF member was not a participant	205	37.75	157	34.66	
Relationship status					
Married	472	86.92	411	90.73	0.16
De facto	47	8.66	29	6.40	
Other	24	4.42	13	2.87	
Years together					
0–2	11	1.97	6	1.33	0.03
3–5	42	7.51	24	5.31	
5–10	146	26.12	91	20.13	
10+	360	64.40	331	73.23	
Service					
Navy	105	19.34	95	20.97	0.50
Army	309	56.91	264	58.28	
Air Force	129	23.76	94	20.75	
Service status[b]					
Active	499	91.90	400	88.30	0.057
Ex-serving	44	8.10	53	11.70	
Dual-serving couples	148		108		
Number of children					
0	125	26.94	105	26.92	0.56
1	96	20.69	90	23.08	
2	174	37.50	127	32.56	
3	52	11.21	53	13.59	
4+	17	3.66	15	3.85	

a. Chi-square test for association.
b. These data were not obtained for all the participants.

Partner participants were asked 'How many deployments has your partner been on since you have been together?' Table 3.7 shows that more than half the Timor-Leste partners and almost one-third of comparison partners had experienced two or more deployments since being in a relationship with their ADF member (Timor-Leste partner Mean = 3.3, SD = 6.6; comparison partner Mean = 1.8, SD = 5.2). Sixteen per cent of Timor-Leste partners met their ADF member following the member's deployment. More than 40 per cent of partners

had experienced two or more deployments since they had been in a relationship with their ADF member. Chapter 6 details the locations of those deployments.

Table 3.7 Partner reports of the number of deployments since being together

	Timor-Leste couples		Comparison couples	
Number of deployments	***n***	**%**	***n***	**%**
0	103	15.8	251	41.4
1	162	24.9	154	25.4
2	140	21.5	92	15.2
3	101	15.5	43	7.1
4	53	8.1	28	4.6
5+	93	14.2	38	6.3
Not specified	45		29	

ADF members also reported the number of deployments they had experienced (see Table 3.8). The mean number of deployments for Timor-Leste ADF members was 2.8 (SD = 4.4); for comparison ADF members it was 1.1 (SD = 6.3).

Table 3.8 ADF member reports of the number of their deployments, 1997 to 2011

	Timor-Leste ADF member		Comparison ADF member	
Number of deployments	***n***	**%**	***n***	**%**
0	0	0	570	54.3
1	503	36.9	246	23.5
2	364	26.7	117	11.2
3	195	14.3	53	5.1
4	121	8.9	34	3.2
5+	182	13.3	29	2.8
Not specified	160		208	

There are differences in the proportion of partners and ADF members reporting the number of deployments they had experienced. Table 3.7 covers deployments experienced by the partners since they were in a relationship with their ADF member. Some ADF members might have deployed before they met their partners and might not have told their partner about those deployments.

The nominal rolls did not include information about deployments completed by the ADF member; they simply provided information on whether they had deployed to Timor-Leste or not. Some partners might have included long trips, exercises or overseas activities that are not categorised by Defence as operational deployments but are experienced by partners in a manner akin to a deployment.

Additionally, not every partner had an ADF member who responded, not every ADF member nominated their partner, and some nominated partners did not respond. It is thus not possible to associate the ADF members' reporting of deployments with the partners' questionnaire responses. As a result, subjective counts of the number of deployments experienced were considered the most suitable measure.

Discussion

This chapter describes the study sample and method and details the recruitment outcomes for and characteristics of participants and non-participants.

The participation rate of 40.2 per cent for Timor-Leste ADF members and 33.4 per cent for comparison ADF members (36.8 per cent combined, n = 2,854) is in line with the results of other self-report questionnaire studies in military populations. The East Timor Health Study (McGuire et al. 2009b) obtained a participation rate of 43 per cent (n = 2,784).

A lower response rate for the comparison group is common in self-report questionnaire studies. The study method might, however, have had a detrimental affect on comparison members' participation. The name of the study, the Timor-Leste Family Study, caused initial difficulty in the recruitment of comparison participants. The study team received a large number of emails and some phone calls from comparison ADF members saying that, since they had never deployed to Timor-Leste, they did not know why they had been invited.

When phone follow-up began, many comparison ADF members told the phone team they had discarded their invitation and/or reminder because of the name of the study. Although the function of the comparison group was clearly explained on the study information sheets, many people did not read that information. The phone team explained to these people why they had been invited and why their participation was important: these verbal explanations appear to have encouraged more comparison group members to participate.

The study team suggests that the approach taken by the Korean War Veterans' Health Study (Monash University 2005) for the recruitment of their comparison participants be adopted in future research. That study labelled the invitation materials for their comparison sample 'Survey of Men's Health and Ageing' and explained that the survey was part of a study of Korean War veterans.

The demographic differences between participants and non-participants are similar to those applying to the East Timor, Solomon Islands and Bougainville Health Studies, the Australian Gulf War Veterans' Health Study and the Korean War Veterans' Health Study (McGuire et al. 2009a, 2009b, 2009c; Monash University 2003, 2005). All five studies found that the comparison group responded less and older age groups (except for the Korean Study, which was not comparable), active members and higher ranked members responded more.

The five studies also found statistically significant differences in participation by Service. The Timor-Leste Family Study did not have a statistically significant difference by Service. The analysis in the chapters that follow focuses on outcomes for partners of ADF members. Importantly, there were fewer statistically significant differences in responses between the Timor-Leste and comparison group partners. Partner groups differed only in age distribution and rank. The comparison partners were slightly older, and their ADF members were more likely to be commissioned officers.

The study results are in the main adjusted by age range, sex, rank and Service to account for the known differences in self-reported health by these variables. The adjustments by age and rank might have reduced the impact of the lower participation of the middle age range and lower ranked members.

Recruitment of ex-serving ADF members is difficult because of outdated contact details in the nominal rolls. Similarly, the contact details for members of the Reserve forces tend to be less accurate. The higher level of participation for ADF members who also participated in the MilHOP study reflects the fact that the MilHOP sample was largely currently serving members with up-to-date contact details.

The phone follow-up reporting database provided to the study team the reasons individuals gave for their non-participation before they had received phone follow-up. Two reasons were as follows:

- A number of ADF members and partners felt that deployment did not negatively affect their lives and therefore saw their participation as irrelevant.
- A number of ADF members said they were not in a relationship at the time of their deployment and so had not provided their current partner's contact details.

The phone team spoke with potential participants about the importance of the study and the value of the participation of individuals with a range of experiences. This converted a large number of potential non-respondents into respondents.

The phone team was also integral to encouraging ADF members to provide to the study team their partner's contact details: 87 per cent of partner contact details were obtained from the ADF members after they had received phone follow-up.

The inclusion of former partners in the study was considered important because of the impact military life is perceived to have on relationships. Considerable time, effort and money were spent framing recruitment strategies and questionnaires so that they were appropriate for former partners. The completion rate for former partners was low compared with that for current partners (16.5 per cent), and few ADF members provided their former partner's

contact details (n = 126), which suggests that this was an unsuccessful strategy. The study team suggests that recruitment for quantitative research with former partners of ADF members be done through self-selection via marketing.

4 Health impacts on Timor-Leste and comparison partners

This chapter examines the physical, mental and family health of partners of ADF members deployed to Timor-Leste in comparison with that of the partners of ADF members who did not deploy there. It specifically responds to research aim 1. Chapter 6 discusses the impact of deployment, and Chapter 7 deals with the impact of specific risk and protective factors.

Research aim 1

To determine what, if any, physical, mental, or social health impacts there are on a service member's family from the member's deployment to Timor-Leste.

Hypothesis

1. There will be a difference between the partners of ADF members who were deployed to Timor-Leste and those who were not deployed to Timor-Leste on measures of physical, mental, and family health.

Main findings

- There were no statistically significant differences in physical, mental or family health outcomes between Timor-Leste partners and comparison partners.
- Eighty-nine per cent of partners reported their health as excellent, very good or good.
- About 1 per cent of partners reported drinking at risky levels, and about 12 per cent of all partners were smokers.
- Mental health was generally reported as being in the normal range. Less than 6 per cent of partners reported themselves to be in the highest category of distress on the Kessler Psychological Distress Scale, and fewer than 5 per cent screened positively for Posttraumatic Stress Disorder.
- More than 90 per cent of families were functioning well.
- Most partners reported high levels of feeling supported (Mean = 3.4/4), important and secure in their relationships (Mean = 3.53/4) and low levels of conflict (Mean = 1.83/4).
- About 10 per cent of partners screened positively for intimate partner violence.

Introduction

In January 2011 there were about 30,000 recognised partners of ADF members, and members had in their care more than 18,000 children under the age of 18 years (Defence Families of Australia n.d.). Military families are subject to specific stressors that place them at higher risk of developing physical, mental and family health problems (Cozza et al. 2005; MacDermid Wadsworth 2010; Park 2011), so the impact military service has on families needs to be better understood.

Among the stressors military families experience are work-related separations, deployment of the serving member, actual or the risk of physical or psychological injury of the deployed member, and frequent relocations that disrupt education, health care, schooling and social support networks (Dimiceli et al. 2010; Lester et al. 2011).

The ADF provides family support services such as subsidised housing, family support groups, counselling, relocation assistance, and subsidised health care in some posting locations. The support provided can contribute to the general resilience of this population, but each time events such as relocation or deployment occur the roles and responsibilities of family members change (de Burgh et al. 2011). Further, an increased operational tempo and longer deployments place families under added pressure (Andres 2010; Barker & Berry 2009; Burton et al. 2009; Chandra et al. 2009; Lester et al. 2010; Mansfield et al. 2010).

Family wellbeing and satisfaction with military life are associated with the retention, readiness to deploy and morale of serving members, which means the health of families contributes to the health of the military (Ahmadi & Green 2011). For instance, the poor health of partners can affect veterans' readiness to deploy, the wellbeing and recovery of deployed and returning veterans, and members' retention in the ADF (Dimiceli et al. 2010; Evans et al. 2010; Griffin et al. 2009; Warner et al. 2009). The partner's mental health also has an impact on the physical and mental health of any children, and effects for individuals and families can persist for years (Dekel 2007; Dekel et al. 2008; Posada et al. 2011; Solomon et al. 2009).

Physical health

Few studies have investigated the physical health of partners. Deployment has been correlated with adverse physical health for them, with conditions and symptoms such as skin rashes and chronic hepatitis (Eisen et al. 2006) and with somatisation—that is, physical symptoms with no identifiable physical cause (Burton et al. 2009). Posttraumatic Stress Disorder in veterans has been linked with a higher number of somatic symptoms in partners (Caspi et al. 2010).

Correlations with physical ill-health have also been found for families bereaved by the death of a deployed member—for example, conditions and symptoms

such as a higher blood pressure and higher incidence of smoking and alcohol consumption, particularly in the early bereavement period (Santic et al. 2006).

Mental health

Partners of deployed military personnel have been found to have elevated rates of psychiatric diagnoses, including the following:

- stress (Burton et al. 2009; Mansfield et al. 2010; Warner et al. 2009)
- depression (Eaton et al. 2008; Gorman et al. 2011; Mansfield et al. 2010; O'Toole et al. 2010; Renshaw et al. 2010; Warner et al. 2009)
- generalised anxiety (Eaton et al. 2008; Mansfield et al. 2010)
- Posttraumatic Stress Disorder (Gorman et al. 2011; Renshaw et al. 2008)
- sleep disorders (Mansfield et al. 2010)
- adjustment disorders (Mansfield et al. 2010)
- eating disorders (Waasdorp et al. 2007)
- suicide ideation (Gorman et al. 2011).

In some studies the rates of mental health problems for the partners of deployed military personnel were higher than those for the partners of civilians (O'Toole et al. 2010) and those with non-deployed partners (Mansfield et al. 2010). In some cases rates were comparable with those for deployed soldiers themselves (Ein-Dor et al. 2010; Gorman et al. 2011).

Although many factors can play a role in a person's mental health—such as childhood experiences, a history of mental illness, coping resources and social support—several studies have found significant associations between mental health diagnoses in partners and the characteristics of veterans (Bjornestad 2010; Caspi et al. 2010; Ein-Dor et al. 2010; Herzog 2008; O'Toole et al. 2010; Renshaw et al. 2010). This suggests that both military and personal factors affect the mental health of partners.

Prolonged deployment might be associated with a higher number of diagnoses for military partners (Mansfield et al. 2010). Stress levels can differ according to the stage of deployment; for example, worry and tension can characterise pre-deployment, sole parenting can cause stress during deployment, and re-establishing relationships and routines can be challenging after deployment (Chapin 2009; Gewirtz et al. 2011; Lapp et al. 2010). Higher perceived stress has been associated with reduced mental and physical wellbeing for partners of military members (Padden et al. 2011b).

Family health

There are conflicting findings about the relationship between deployment and marital satisfaction (de Burgh et al. 2011). Deployment can adversely affect marital satisfaction (Andres & Moelker 2011; Goff et al. 2007), yet it is not likely to be the only factor (Allen et al. 2010). On the other hand, some studies have shown that relationship satisfaction increases for some couples during deployment (Andres 2010). The length of deployment or an unexpected extension can have a stronger association with marital dissatisfaction than the deployment itself (de Burgh et al. 2011).

Families already experiencing high levels of distress or disruption can find it even more difficult to cope with added stressors such as parental injury, resulting in greater child distress and impaired family functioning (Cozza et al. 2010; L Gorman et al. 2010). Eastman et al. (1990) found that for Navy families family functioning was similar to national norms, showing good cohesion, expression and organisation, and low conflict; it was also found to be stable across different stages of deployment (although family stress levels did fluctuate).

Work–family conflict can adversely affect family functioning. Andres (2010) identified three types of conflict—time based, such as deployment-related separation; strain based, where exhaustion or stress from work affects family relationships; and behaviour-based, such as rules of conduct at work (for example, strictly obeying orders) being inappropriate for home. Work–family conflict can also be related to psychological distress and is significantly associated with marital dissatisfaction (Andres 2010). It is also significantly associated with family satisfaction with military life, which in turn influences an intention to leave the military (Heilmann et al. 2009).

The terms 'intimate partner violence' and 'domestic violence' are often used interchangeably. In this report 'intimate partner violence' is used. It describes abuse between intimate partners whether or not they live are living together. In the Australian military, couples sometimes live separately for service reasons. Domestic violence can include abuse from a household member such as a roommate or care giver.

Intimate partner violence (IPV) includes acts of physical aggression, psychological abuse, forced intercourse and other forms of sexual coercion, and various controlling behaviours such as isolating a person from family and friends or restricting access to information and assistance. IPV affects the health and wellbeing of partners, and violence between parents has negative effects on children, including internalising and externalising behaviour problems (Clarke et al. 2007).

Studies investigating the link between deployment and IPV have produced conflicting results. One large-scale study found that deployment was related to small but significant increases in severe IPV, longer deployments being associated with higher levels of IPV (McCarroll et al. 2000). Other studies found that, once relationship stressors were controlled, deployment was not a risk

factor for IPV (Bradley 2007; McCarroll et al. 2003; Newby et al. 2005). IPV can emerge after a 'honeymoon' period, up to 12 months after a deployment (McCarroll et al. 2003). Overall, the literature suggests that Posttraumatic Stress Disorder, combat exposure and substance use can be risk factors for IPV (Beckham et al. 1998, 1997; Orcutt et al. 2003; Savarese et al. 2001; Taft et al. 2005).

It is clear from the literature that the partners of deployed members face an increased risk of health problems and these are likely to be related to both military and personal factors. Although only a relatively small percentage experience adverse physical, mental and family health consequences, the impacts are important for the individual partners and also because of the potentially harmful flow-on effects for veterans and children (de Burgh et al. 2011).

Method

Measures

Analyses for this chapter were conducted using the following measures, which are described in Chapter 3:

- physical health
  - general health—Short Form-12 (SF-12) general health (SF-1)
  - physical health—Short Form-12 (SF-12) physical health composite scale (PCS)
  - alcohol use—Alcohol Use Disorder Identification Test (AUDIT)
  - smoking
- mental health
  - psychological distress—Kessler-10 (K10)
  - Posttraumatic Stress Disorder—PTSD Checklist – Civilian Version (PCL-C)
  - mental health—Short Form-12 (SF-12) mental health composite scale (MCS)
- family health
  - family functioning—Family Adaptability and Cohesion Evaluation Scale (FACES-IV)
  - relationship quality—Quality of Relationships Inventory (QRI)
  - work–family conflict—Work–Family Conflict scale (WFC)
  - intimate partner violence—Woman Abuse Screening Tool (WAST).

Results

Analyses

Outcomes are reported for a maximum of 1,332 partner participants. Not all participants completed every question. For instance, they might not have answered questions about children if they had none. Accordingly, the sample size (*n*) for each measure varies. The impact of missing data is discussed in the final section of this chapter.

Analytical methods used throughout the report

For scales with defined cut-off scores that indicate pathology (for example, symptoms of Posttraumatic Stress Disorder screened for in the PCL-C), logistic regression was used to compare the odds or percentage of people in a higher risk group. Table 4.1 is an example of this type of analysis, and the odds are reported using confidence intervals and *p*-values, as discussed.

For skewed data, the median (ME) and inter-quartile ranges (IQR) are presented, and the Wilcoxon signed rank test is used to assess differences between the Timor-Leste partners and the comparison partners. This type of analysis is reported directly under Table 4.1, and the *p*-value for the test is reported.

For more normally distributed data the means and standard deviations are presented, and comparisons are made using multiple regressions that are adjusted for demographic variables. Table 4.3 uses this type of analysis and reports a *p*-value.

Chi-square analyses test whether the proportions in the groups are different. This type of analysis is used with categorical data.

It is important to remember that this research is based on a cross-sectional study design. It is thus not possible to infer causation from the findings. That is, we cannot know for certain that one thing caused another. For example, in Chapter 7 the relationship between mental health and family functioning is explored. When an association is found it is not clear whether better mental health caused better family functioning or whether better family functioning caused better mental health. Both explanations are reasonable and supported by the analysis. All that can be inferred is that there is an association between better mental health and better family functioning.

Interpreting the analysis

The tables often report confidence intervals. A confidence interval shows a range within which the true outcome is likely to lie. In Table 4.1 the second group of numbers in the column second from the right includes a confidence interval—0.74 (0.52, 1.07). An interpretation of this statistic might read, 'Having accounted for the differences between the Timor-Leste partners and the comparison partners in age, sex, education status and their partner's rank and Service, it was found that Timor-Leste partners were 26 per cent less likely (1–0.74 = 0.26 or 26%) to report their physical health as fair or poor compared with the comparison partners'. The

confidence interval around this ranges from 0.52 (half as likely) to 1.07 (7 per cent more likely), however, and we are unable to conclude that there is a statistically significant difference between the groups. The reporting of confidence intervals helps to cast light on natural variation that occurs in measuring outcomes.

The other statistic used in this report is the *p*-value, which is calculated to show whether the difference occurred simply through chance. The *p*-value is the probability that effects as big as those seen in the study would be observed if there was really no difference between the groups. A *p*-value of less than 0.05 shows that the results are statistically significant. For example, looking at Table 4.1, the *p*-value of 0.11 confirms what was understood from the confidence interval—that the difference between the groups is not statistically significant.

Physical health

SF-12: general health (SF-1)

Partners were asked to rate their own physical health on a scale from 'poor' to 'excellent'. Table 4.1 shows the results.

Table 4.1 General health categories for Timor-Leste partners and comparison partners

	Timor-Leste partners		Comparison partners		OR	
Category	***n***	**%**	***n***	**%**	**(95% CI)[a, b]**	***p*-value**
Excellent	84	13.3	105	17.5		
Very good	267	42.1	225	37.4	1 (baseline)	
Good	216	34.1	193	32.1		
Fair	56	8.8	64	10.7		
Poor	11	1.7	14	2.3	0.74 (0.52, 1.07)[a,b]	0.11
Not specified	63		34			

a. Fair/poor compared with excellent/very good/good.
b. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education status, and ADF members' rank and Service.
Note: *N* = 1,235.

The majority of Timor-Leste partners and comparison partners reported 'good', 'very good' or 'excellent' overall health. No statistically significant differences were found between the groups. Approximately 11 per cent of partners reported their health as 'fair' or 'poor'. In comparison, the 2004–05 National Health Survey (Australian Bureau of Statistics 2006) found nine per cent of females aged 25–44 years reported 'fair' or 'poor' general health, which is similar to the findings reported here, although this sample includes males and females who are either older or younger than those in the similar category from the National Health Survey.

SF-12: physical health composite scale (PCS)

Scores on the physical health composite scale of the SF-12 range from 0 to 100 with a mean of 50 (SD = 10). Scores of 40 or below suggest low levels of health; scores of 60 or above suggest exceptionally good health.

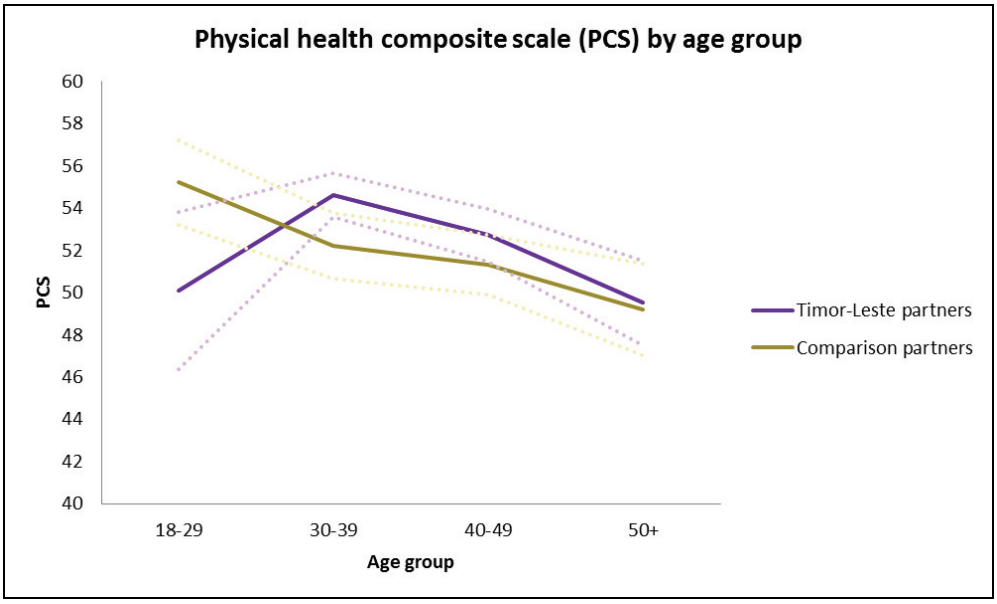


Figure 4.1 SF-12 PCS scores for Timor-Leste and comparison partners, by age group

As Figure 4.1 shows, overall both Timor-Leste and comparison partners were in the healthy physical range. There were no statistically significant differences between Timor-Leste partners and comparison partners based on age range, sex, education status, rank or Service. The thick coloured lines represent the adjusted overall scores for Timor-Leste or comparison partners in different age groups. The dotted lines represent the confidence intervals: if multiple samples were taken of partners the 'true' values would lie within the confidence interval in 95 per cent of the samples.

AUDIT

The AUDIT measures patterns of alcohol consumption, particularly hazardous or harmful drinking behaviour. A score between 0 and 7 indicates low-risk alcohol consumption patterns, 8 to 15 indicates mild risk, 16 to 19 indicates high to hazardous risk, and 20 to 40 indicates harmful and hazardous drinking. Table 4.2 shows the results.

Table 4.2 Alcohol consumption patterns for Timor-Leste partners and comparison partners

	Timor-Leste partners		Comparison partners	
AUDIT score	***n***	**%**	***n***	**%**
0–7	525	87.6	518	90.7
8–15	59	9.8	51	8.9
16–19	9	1.5	1	0.2
20–40	6	1.0	1	0.2
Not specified	98		64	

The median AUDIT scores were identical between Timor-Leste partners and comparison partners (ME = 3.0, IQR_{TL} = 3, IQR_{COMP} = 4). Most partners reported consuming alcohol at safe levels. The Wilcoxon-Mann-Whitney test found no statistically significant difference between Timor-Leste and comparison partners overall (p = 0.22).

Because there were insufficient numbers in the high to hazardous range on the AUDIT (that is, 16 to 40), the odds ratios of scoring above 16 between Timor-Leste and comparison partners are not presented. The National Health Survey (Australian Bureau of Statistics 2006, 2009) uses different outcomes for measuring risky drinking, so direct comparisons with the Australian population are not possible.

Smoking

Two questions were asked about smoking—lifetime and currently. Table 4.3 shows the results.

Table 4.3 Smoking patterns for Timor-Leste partners and comparison partners

	Timor-Leste partners		Comparison partners		OR	
Smoking status	***n***	**%**	***n***	**%**	**(95% CI)[a]**	***p*-value**
Never smoker	344	55.1	349	59.7	1 (baseline)	
Ever smoker	196	31.4	174	39.7		
Current smoker	84	13.5	62	10.6	1.23 (0.85, 1.78)[b]	0.27
Not specified	73		50			

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education status, and ADF members' rank and Service.
b. Current smoker compared with non-current smoker.
Note: *N* = 1,209.

Over half of Timor-Leste and comparison partners reported that they had never smoked. Timor-Leste partners were 23 per cent more likely to be current smokers compared with comparison partners, although this difference was not statistically significant. As an approximate comparison, in the 2007–2008 National Health Survey (Australian Bureau of Statistics 2009), 22.3 per cent of females aged between 25 and 44 were reported as current smokers. This

comparison is not adjusted for age or sex and is provided only to facilitate understanding.

Mental health

SF-12: mental health composite scale (MCS)

Scores on the SF-12 (MCS) range from 0 to 100 with a mean of 50 (SD = 10). Scores of 40 or below suggest low levels of health; scores of 60 or above suggest exceptionally good health. Table 4.4 shows the results.

Table 4.4 Self-report mental health categories for Timor-Leste partners and comparison partners

Timor-Leste partners (*n* = 608)		Comparison partners (*n* = 582)		Difference (95% CI)[a]	*p*-value
Mean	(SD)	Mean	(SD)		
47.6	(11.6)	47.8	(11.0)	0.2 (–1.1, 2.8)	0.73

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education status, and ADF members' rank and Service.
Note: *N* = 1,190.

Overall, Timor-Leste and comparison partners were in the normal or average range for mental health. There was no statistically significant difference between Timor-Leste and comparison partners on mental health status (p = 0.73). Nor were statistically significant differences found between Timor-Leste partners and comparison partners when examined by age. Mental health status was also examined by sex and ADF members' rank and Service: no statistically significant differences were found.

K10

The K10 measures partners' overall psychological distress. Scores from 10 to 15 suggest low or no psychological distress, scores from 16 to 29 suggest mild to moderate psychological distress, and those from 30 to 50 suggest high to severe psychological distress. Table 4.5 shows the results.

Table 4.5 Psychological distress as measured by K10 for Timor-Leste partners and comparison partners

	Timor-Leste partners		Comparison partners		OR	
K10 score	*n*	%	*n*	%	(95% CI)[a]	*p*-value
10–15	372	59.8	357	60.8	1 (baseline)	
16–29	217	34.9	193	32.9		
30–50	33	5.3	37	6.3	0.77 (0.47, 1.26)[b]	0.29
Not specified	75		48			

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education status, and ADF members' rank and Service.
b. K10 scores 30–50 compared with 10–29.
Notes: *N* = 1,209. Potential implications of and reasons for the number of participants categorised as 'not specified' are discussed in the final section of this chapter.

Timor-Leste partners were no more likely than comparison partners to report high levels of psychological distress. The majority of partners reported experiencing either low or no psychological distress. The median scores were identical, and IQRs for Timor-Leste and comparison partners were very similar (ME = 14, IQR Timor-Leste = 7, IQR comparison = 8). The Wilcoxon-Mann-Whitney test found no statistically significant difference between Timor-Leste partners and comparison group partners on psychological distress (p = 0.3). As an approximate comparison, in the 2007–2008 National Health Survey 4.1 per cent of females aged between 25 and 44 years reported in the highest distress category of the K10. This comparison is not adjusted for age or sex and is provided only to facilitate understanding.

PCL-C

The PCL-C is a measure of symptoms of Posttraumatic Stress Disorder and is a screening tool rather than being diagnostic. A score equal to or greater than 50 indicates a positive screen for PTSD and in a clinical setting would require further follow-up. Table 4.6 shows the results.

Table 4.6 PTSD screening for Timor-Leste partners and comparison partners as measured by the PCL-C

	Timor-Leste partners		Comparison partners		OR	
PCL-C score	*n*	%	*n*	%	(95% CI)[a]	*p*-value
17-49	578	95.7	552	94.7	1 (baseline)	
50-85	26	4.3	31	5.3	0.75 (0.43, 1.31)[b]	0.31
Not specified	93		52			

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education status and ADF members' rank and Service.
b. PCL-C scores 50–85 compared with 17–49.
Note: *N* = 1,186.

Very few partners screened positive for PTSD—less than 5 per cent overall. The median scores and IQRs were identical for Timor-Leste partners and comparison partners (ME = 21, IQR = 10). The Wilcoxon-Mann-Whitney test found no statistically significant differences between Timor-Leste and comparison partners (p = 0.68).

Family health

FACES-IV

FACES-IV measures family cohesion (that is, emotional bonding with family) and flexibility (the amount of change in family leadership, role relationships and relationship rules).

Scores are presented on a grid, with 'cohesion' on the *x* axis and 'flexibility' on the *y* axis. Scores within the central nine squares of the grid show that families are within the balanced range (moderate cohesion and flexibility). According to the model, this means they will be more likely to function well across the life cycle and adapt well to crisis and change. Scores in the squares around the

edges of the grid represent a lack of balance in the family. In broad terms, more extreme scores on either dimension suggest a lack of balance. Families will change their level of balance, particularly in times of stress, but being in the unbalanced range for prolonged periods is associated with problematic family functioning. Unbalanced scores (the four corner squares) represent extreme scores on both scales, and mid-range scores (the three outer squares between each corner) represent an extreme score on one scale. The data shown represent how partners perceived their family to be functioning; other members of the family might have felt differently.

FACES-IV scores based on Timor-Leste partner and comparison partner responses were plotted to determine if the groups differed in relation to family cohesion and flexibility (see Figure 4.2).

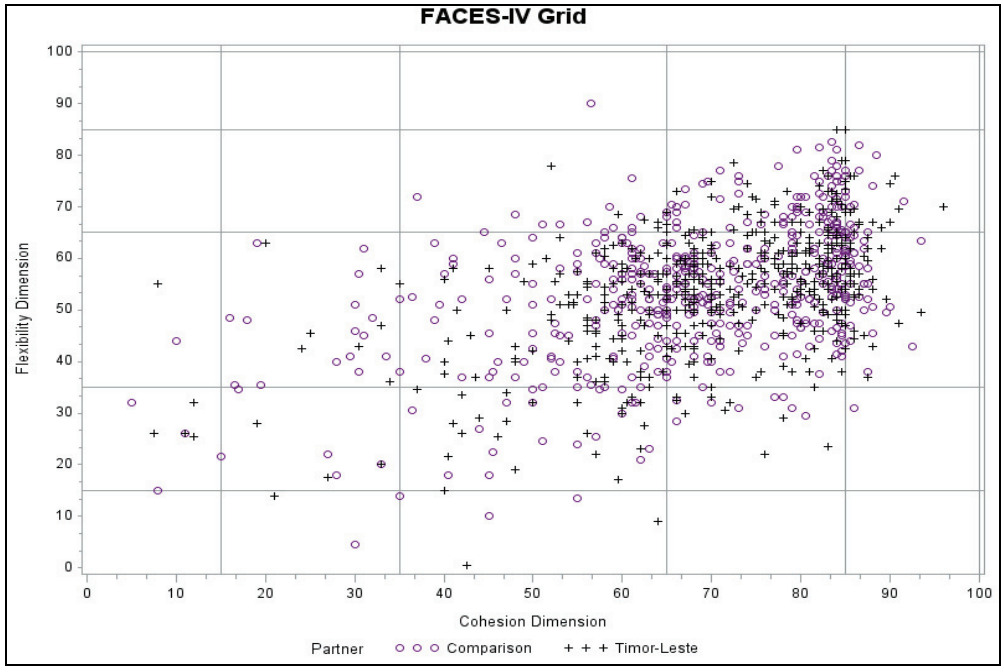


Figure 4.2 Timor-Leste partners' and comparison partners' FACES-IV family cohesion and flexibility scores

It is evident that most families were operating within the balanced range, displaying moderate degrees of cohesion and flexibility. The median scores were very similar for Timor-Leste and comparison partners: the Wilcoxon-Mann-Whitney test found no statistically significant differences (p = 0.11 and 0.66 respectively). The data were also examined by partners' age, sex and education level and ADF members' rank and Service, and no statistically significant differences were found.

Further analyses revealed no evidence that the proportion of Timor-Leste and comparison families differed in the balanced (Timor-Leste = 91.6 per cent,

comparison partner= 92.5 per cent), mid-range (Timor-Leste = 8.4 per cent, comparison partner = 7.3 per cent) or unbalanced categories (Timor-Leste = 0.0 per cent, comparison partner = 0.2 per cent).

Family communication styles were also measured using FACES-IV. Scores that are very low to low suggest that families might not communicate effectively; scores from moderate to very high suggest that families communicate effectively. Table 4.7 shows the results.

Table 4.7 Timor-Leste partners' and comparison partners' perceptions of family communication as measured by FACES-IV

	Timor-Leste partners		Comparison partners			
Communication level	***n***	**%**	***n***	**%**	**OR (95 CI)**	***p*-value**
Very low	45	7.8	56	10.2		
Low	65	11.3	65	11.9	1.00 (0.78,1.27)[a,b]	0.98
Moderate	162	28.2	141	25.8		
High	156	27.1	141	26.8		
Very high	147	25.6	144	26.3	1.00 (baseline)	
Not specified	123		87			

a. Communication levels very low to moderate versus high to very high.
b. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,112.

The median percentile scores were identical for both groups. The Wilcoxon-Mann-Whitney test found no statistically significant differences between Timor-Leste partners and comparison partners ($p = 0.57$). As noted, the data were also examined by partners' age, sex and education level and ADF members' rank and Service: no statistically significant differences were found. Most families appeared to have good communication.

FACES-IV also measures family satisfaction. Lower scores suggest lower satisfaction within the family (see Table 4.8).

Table 4.8 Timor-Leste and comparison partners' perceptions of family satisfaction as measured by FACES-IV

	Timor-Leste partners (*n* = 438)		Comparison partners (*n* = 405)			
Satisfaction level	***n***	**%**	***n***	**%**	**OR (95% CI)**	***p*-value**
Very low	42	9.6	47	11.6	1.07 (0.80,1.43)[a,b]	0.64
Low	30	6.9	21	5.2		
Moderate	88	20.1	73	18.0		
High	131	29.9	120	29.6	1.00 (baseline)	
Very high	147	33.6	144	35.6		
Not specified	260		229			

a. Satisfaction level very low to moderate compared with high to very high.
b. Adjusted for partner's age (18–29, 30–39, 40–49, 50+), sex and education level and ADF members' rank and Service.
Note: *N* = 843.

Median family satisfaction scores were similar for Timor-Leste and comparison partners. No statistically significant difference between the groups was found on the Wilcoxon-Mann-Whitney test ($p = 0.48$). The data were also examined by partners' age, sex and education level and ADF members' rank and Service: no statistically significant differences were found. Again, most partners reported moderate to very high levels of family satisfaction.

Quality of Relationships Inventory

The QRI measured Timor-Leste and comparison partners' perceptions of social support in their relationship; the extent to which the relationship was a source of conflict and ambivalence; and how positive, secure and important their relationship was with their partner (referred to as 'depth'). Scores range from 1 to 4. Higher scores on the social support and depth scales represent more positive outcomes; higher scores on the conflict scale suggest more conflict. Table 4.9 shows the results for this study.

Table 4.9 Mean differences of Timor-Leste partners and comparison partners on the QRI subscales: social support, conflict and depth

Subscale	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Social support								
Timor-Leste partner	628	3.42	0.61	0.04	(–0.03,0.11)[a]	0.03	(–0.04,0.10)[b]	0.43
Comparison partner	582	3.38	0.68	0	(baseline)	0	(baseline)	
Conflict								
Timor-Leste partner	589	1.83	0.59	0.00	(–0.07, 0.06)[a]	–0.01	(–0.08, 0.06)[b]	0.79
Comparison partner	567	1.83	0.64	0	(baseline)	0	(baseline)	
Depth								
Timor-Leste partner	616	3.53	0.48	0.00	(–0.05, 0.05)[a]	0.00	(–0.05, 0.05)[b]	0.87
Comparison partner	574	3.53	0.51	0	(baseline)	0	(baseline)	

a. Mean difference between Timor-Leste and comparison partners' QRI scores.
b. Adjusted mean difference between Timor-Leste and comparison partners' QRI scores, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: Timor-Leste partners *n* = 697; comparison partners *n* = 635.

The analyses revealed no statistically significant differences between Timor-Leste and comparison partners on any of the QRI subscales. Similarly, there were no statistically significant differences when the data were examined by the partners' age, sex and education level and ADF members' rank and Service. The results suggest that, on average, most partners felt supported and positive about their relationship and reported low levels of conflict.

Work–Family Conflict Scale

The impact of work interference on home life was measured using the WFC. Average scores range from 1 to 5; lower scores suggest greater work–family conflict. Table 4.10 shows the results.

Table 4.10 Mean scores for Timor-Leste partners and comparison partners on the Work–Family Conflict Scale

Partner	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Timor-Leste	584	2.80	1.12	–0.04	(–0.18, 0.10)[a]	-0.04	(–0.17, 0.10)[b]	0.58
Comparison	554	2.84	1.13	0	(baseline)	0	(baseline)	

a. Mean difference between Timor-Leste and comparison partners' WFC scores.
b. Adjusted mean difference between Timor-Leste and comparison partners' WFC scores adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.

Composite scores were created for the WFC by taking the average of the item scores. The mean composite WFC scores were very similar for Timor-Leste and

comparison partners. As noted, the data were also examined by partners' age, sex and education level and ADF members' rank and Service: no statistically significant differences were found. The mean WFC scores suggest that Timor-Leste and comparison partners, on average, were between agreeing and a neutral response that their partner's work caused some conflict in the family.

The individual items from the WFC scale were analysed: the results are presented in Table 4.11. Scores were grouped according to whether partners strongly agreed or agreed, were neutral, or disagreed or strongly disagreed with the item.

Table 4.11 Work–Family Conflict Scale item responses for Timor-Leste partners and comparison partners

	Timor-Leste partners		Comparison partners			
Statement/response	***n***	**%**	***n***	**%**	$\chi^2_{df=2}$	***p*-value**
The demands of my partner's work interfere with my home and family life						
Strongly agree/agree	315	53.5	299	53.5	0.05	0.97
Neutral	109	18.5	106	19.0		
Disagree/strongly disagree	165	28.0	154	27.6		
The amount of time my partner's job takes up makes it difficult for him/her to fulfil family responsibilities.						
Strongly agree/agree	252	42.9	219	39.3	2.81	0.25
Neutral	111	18.9	126	22.6		
Disagree/strongly disagree	224	38.2	213	38.3		
Things my partner wants to do at home do not get done because of the demands my partner's job puts on him/her.						
Strongly agree/agree	245	41.7	227	40.7	0.23	0.89
Neutral	118	20.1	188	21.2		
Disagree/strongly disagree	225	38.3	213	38.2		
My partner's job produces strain that makes it difficult for him/her to fulfil family duties.						
Strongly agree/agree	228	38.8	193	34.7	2.94	0.23
Neutral	114	19.4	127	22.8		
Disagree/strongly disagree	245	41.7	236	42.5		
Due to work-related duties, my partner has to make changes to his/her plans for family activities.						
Strongly agree/agree	326	55.5	311	55.9	2.05	0.36
Neutral	100	17.0	79	14.2		
Disagree/strongly disagree	161	27.4	166	29.9		

Note: *N* = 1,138.

Chi-square analyses show that there were no statistically significant differences in the way Timor-Leste partners and comparison partners rated work–family conflict. In general, both sets of partners had experienced some work–family conflict, half of the sample responding that the ADF members' work interferes with home life and family activities.

Nevertheless, fewer people agreed that their partner had difficulty fulfilling family responsibilities and duties or did not get things done at home, suggesting that conflict between work life and family life is a complex relationship.

The Woman Abuse Screening Tool

The WAST screens for and measures intimate partner violence or partner abuse. It specifically measures psychological, sexual and emotional abuse. The questions include items asking 'Has your partner ever abused you physically/emotionally/sexually?' and the response options are 'never', 'sometimes' or 'often'. Analysed responses cannot establish the frequency or duration of any abuse.

The first two items on the WAST assess the degree of relationship tension and the amount of difficulty the respondent and partner have in resolving arguments. If Timor-Leste and comparison partners responded in the highest category (that is, 'a lot of tension' and 'great difficulty') to either of these items, this constituted a positive screen for intimate partner violence. A positive screen did not require a participant to endorse any item relating to violence. Brown et al. (2000) found that the first two questions correctly classified 91.7 per cent of the abused women and 100 per cent of the non-abused women in a validation study.

Table 4.12 Timor-Leste and comparison partners' combined IPV screening scores on the Woman Abuse Screening Tool

	Overall			
Screen for IPV	***n***	**%**	**Mean**	**(SD)**
Positive	123	9.9	15.38	(2.41)
Negative	1,115	90.1	9.86	(1.93)
Missing	94			

Note: *N* = 1,238.

Analyses revealed that the majority of partners (90.1 per cent, *n* = 1,115) screened negatively for abuse (see Table 4.12). This suggests that the majority of partners did not experience violence in their relationship.

To determine if there were differences in the rate of abuse between Timor-Leste partners and comparison partners, only those who screened positively were included in the following analysis. These Timor-Leste and comparison partners were asked to rate the frequency of various feelings and experiences. Scores range from 8 to 24, with lower scores indicative of a lower frequency of abuse of

any form. Table 4.13 shows the mean scores for partners who screened positively on the WAST.

Table 4.13 Frequency scores for Timor-Leste and comparison partners who screened positively on the WAST

Partner	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Timor-Leste	63	9.9	14.89	–0.72	(–1.59, 0.15)[a]	-0.87	(–1.81, 0.07)[b]	0.07
Comparison	60	10.0	15.61		(baseline)		(baseline)	

a. Mean difference between Timor-Leste and comparison partners' WAST scores.
b. Mean difference between Timor-Leste and comparison partners' WAST scores, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 123.

There was no statistically significant difference in the proportion of Timor-Leste and comparison partners who screened positively for abuse. Neither was there a statistically significant difference between the mean scores (the average reported level of abuse) of Timor-Leste and comparison partners who screened positively for abuse. The data were also examined by partners' age, sex and education level and ADF members' rank and Service: no statistically significant differences were found.

Discussion

This chapter investigates the physical, mental and family health of the partners of ADF members who deployed to Timor-Leste. No statistically significant differences were found between those partners and comparison partners on measures of physical health, mental distress, Posttraumatic Stress Disorder symptoms, mental health status, drinking, smoking, family functioning, relationship satisfaction, work–family conflict or partner abuse. All analyses were adjusted for partners' age (18–29, 30–39, 40–49 and 50+ years), sex and education level and ADF members' rank and Service (Navy, Army or Air Force).

Overall, the majority of partners scored within the healthy range on almost all measures. The 2007–2008 National Health Survey (Australian Bureau of Statistics 2009) provides some information on self-reported health, smoking and psychological distress. The findings for females aged between 25 and 44 years were similar to those reported here. The data have not, however, been matched for age and sex or statistically compared.

When answering questions about work–family conflict, partners reported that their ADF member's work created conflict in some aspects of their family life but not in others, highlighting the complex effects military life has on families.

Measuring partner abuse is difficult because such abuse tends to be under-reported, the questions can be confronting for the participant, and domestic abuse can take many forms. Choosing the most suitable and sensitive way of measuring abuse was therefore difficult.

The screening tool used for this study—the Woman Abuse Screening Tool—was chosen because it was short, participants had reported being 'comfortable' or 'very comfortable' when the WAST was administered in other research (Brown et al. 2000), it measured multiple facets of intimate partner violence (physical, emotional and sexual), it was less intrusive than other measures that ask for more details about the kinds of abuse, and it has been shown to be scientifically reliable.

Participants were classified as screening positively for intimate partner violence without having to endorse any specific items about abuse. They had only to agree that there was a lot of tension or that arguments were resolved with great difficulty. These two questions have been shown to correctly identify more than 90 per cent of abused women (Brown et al. 2000). The WAST does not, however, reveal the duration or frequency of any abuse or whether the individual had experienced abuse in earlier relationships. As a result, no further information is available about the proportion of partners of ADF members who were experiencing abuse at the time or had sought help for this problem, or whether any children in the relationship were also suffering, or for how long they had been in this situation. Nevertheless, the WAST provided a baseline measure of how many partners might have experienced IPV in their current relationship. About 10 per cent of partners screened positively. Further exploration to better understand IPV in the military community is warranted, particularly in relation to how the military community compares with the civilian community in Australia.

It is perhaps puzzling that no statistically significant differences were found between the partner groups. Some measures, such as the PCL-C and the AUDIT, assess outcomes that are comparatively rare in the community: one would not expect large percentages of the population to have Posttraumatic Stress Disorder or to be high-risk drinkers. The confidence intervals associated with the statistics reflect this: they are very wide and include the possibilities of the Timor-Leste partners doing better or worse than the comparison partners.

There are other plausible reasons for a finding of no statistically significant difference between the groups, the most obvious being that there is no difference. In contrast to earlier conflicts, such as World War I or the Vietnam War, contemporary ADF members are likely to have been on more than one operational deployment. Both comparison partners and Timor-Leste partners might have experienced their ADF member's deployment to another location. Extrapolating from Table 3.8, 46.7 per cent of all partners had been in a relationship with their ADF partner for two or more deployments. Consequently, as ADF members experience more deployments, each of them different, isolating the specific impact of an individual deployment becomes more difficult. It is possible that the absence of the serving member, rather than the location of their deployment, has the greatest impact (Andres & Moelker 2011). Further, in the current operational environment it is not clear whether those who have not deployed are, from an epidemiological point of view, equivalent to those who have deployed. They might have different training, skills or duty requirements that require them to remain in Australia, or there might be some other health or

family reason that makes them systematically different from those who have deployed. It is thus difficult to isolate a particular deployment experience from any other deployment or non-deployment experiences.

Overall, the sample was reasonably healthy. The literature generally finds that military families constitute a robust and resilient population (Cozza et al. 2005). Alternatively, it is possible that partners who were experiencing health problems did not participate in the study, with the result that healthy, well-functioning partners are over-represented.

For some partners up to 12 years have passed since Timor-Leste deployment and any unique impacts might have since dissipated. More than a quarter of the partners of Timor-Leste veterans were not with their ADF member at the time of that deployment. The East Timor Health Study (McGuire et al. 2009b) found that East Timor veterans who deployed between September 1999 and January 2000 had a higher mean number of symptoms on the PTSD Checklist – Civilian Version than did ADF members who deployed later; although the mean was higher it was not above 50, indicating a positive screen. It is reasonable to infer that if there was any secondary traumatisation of the veteran's partner, this event is comparatively rare and consequently not apparent in statistical analyses. Prospective research designs are better able to answer questions of specific effects at specific times.

More than 75 per cent of all partner participants completed more than 90 per cent of the questionnaire, the most frequent missing answers being those for free text fields such as 'Please list below any benefits that you gained from your partner's deployment'. In contrast, fewer than 10 per cent of partner participants completed less than 20 per cent of the questionnaire. All participants who responded were included in the analysis and as a result there were missing data on most measures. This could relate to partner health.

Lead statements to questionnaire scales that participants might have found distressing (for example, questions about abuse) included the statement 'If you would prefer not to answer any of these questions, please leave them blank'. It is realistic to assume that this advice was taken by some participants.

Most of the measures reported require the calculation of a final score from a set of questions. For example, in order to calculate an individual's consumption of alcohol category (AUDIT), answers to 10 questions were needed. If the participant missed an item, calculating their score was not possible and they were reported as having missing data. Where statistical techniques for replacing missing data were available, they were used. For example, the Kessler-10 measure reports outcomes in categories. If a participant missed one question, and assuming any response to that question did not change which category they belonged to, that individual's category outcome was included.

Longer measures have an increased likelihood of having data missing from them. The FACES-IV (Family Adaptability and Cohesion Evaluation Scale) is the longest scale in the questionnaire and family functioning scores were not able to

be calculated for more than 400 partners. This is unlikely to represent a difference between Timor-Leste and comparison partners because the amount of missing data was about the same between the two groups. Nonetheless, it is possible that partners in greater distress did not complete this measure, meaning they are not appropriately represented by the data.

Chapter 5 also deals with research aim 1 but focuses on whether there are any differences in outcomes for the children of ADF members who deployed to Timor-Leste compared with children of ADF members who had not deployed to Timor-Leste. Chapter 6 begins the analysis of risk and protective factors associated with health outcomes.

5 Health impacts on Timor-Leste and comparison partners' children

This chapter deals with research aim 1, focusing on fertility, pregnancy and outcomes for children in ADF and comparison families.

Research aim 1

To determine what, if any, physical, mental, or social health impacts there are on a service member's family from the member's deployment to Timor-Leste.

Hypothesis

2. There will be a difference between the children of ADF members who were deployed to Timor-Leste and those who were not deployed to Timor-Leste on a measure of emotions and behaviour.

Main findings

There were no statistically significant differences in the number of miscarriages, birth defects or child deaths between the Timor-Leste and comparison partners. The birth rate and rate of infertility (including factors associated with infertility, such as miscarriage) found in this study are not dissimilar to those found in studies in the general Australian population.

There were no statistically significant differences in reported outcomes between the children of Timor-Leste partners and those of comparison partners. According to the Strengths and Difficulties Questionnaire website (http://sdqinfo.org/py/doc/c0.py), approximately 10 per cent of children in a community will have elevated scores on either the prosocial or the total difficulties scales and a further 10 per cent will be considered at risk. On the basis of this information, approximately 80 per cent of children should be in the normal category, as was found to be the case in this study.

Introduction

Pregnancy and birth outcomes

The majority of military-related research into pregnancy and birth outcomes focuses on women in the military. The evidence about the influence of military service on reproductive health is mixed. In general, pregnancy outcomes do not appear to differ among deployed as opposed to non-deployed women. Several studies of deployment status have demonstrated differences that were not statistically significant (Kang et al. 2000; Ryan et al. 2011; Wells et al. 2006; Werler et al. 2005), while others present evidence to the contrary, such that

military service adversely affects rates of spontaneous abortion, stillbirth and ectopic pregnancy for servicewomen (for example, Araneta et al. 2004). There are also mixed findings on birth defect rates among deployed and non-deployed women (for example, Cowan et al. 1997; Kang et al. 2001; Langlois et al. 2009). This could, however, be related to the low power of many samples because of the rarity of these types of problems occurring.

Personal and family-centred care is essential to promote military family readiness. That is, if a service member is distracted about his or her family's quality of life, then efficiency, productivity and safety are compromised (Kennedy et al. 2009). Research from the United States suggests that the partners of serving members who receive supportive group prenatal care during pregnancy are at a much reduced risk of preterm birth (Ickovics et al. 2007), with fewer emergency room visits, operative births, labour inductions and augmentations and less use of medication in childbirth compared with women receiving individual prenatal care (Massey et al. 2006; Rising 1998).

Child outcomes

Many families in the armed forces are young and have children during their military service. Military children and families are subject to specific stressors, yet they tend to function quite well. Perhaps this is because they have compensating strengths, including support from a broader Defence family (that is, unit and military communities), although they can still be vulnerable (Bowen et al. 2003; Cozza et al. 2005; Palmer 2008). Over time, the challenges military families and young people face can begin to take a toll on their health and wellbeing (Chandra et al 2008; Flake et al. 2009).

For a child, having a parent deploy can be a difficult situation to manage. It can affect physical health, academic performance and school engagement, as well as increase the number of diagnoses for behaviour disorders, depression, anxiety, stress reactions and adjustment disorders in youth (Engel et al. 2010; Mansfield et al. 2011; Park 2011). More than one-third of school-age children have been found to be at higher risk of psychosocial difficulties during parental deployment (Flake et al. 2009).

Children with a deployed parent can exhibit increased internalising (that is, mood) and externalising (that is, behavioural) symptoms, although this appears to be age specific: an increased spectrum of internalising and externalising symptoms is observed in older children (for example, 3 years and greater) with a deployed parent; conversely, younger children (for example, less than 3 years) generally display fewer 'acting out' behaviours, regardless of parental deployment status (Chartrand et al. 2008). In a study involving adolescents, Reed et al. (2011) found that adolescents from military families experienced greater stress levels than their civilian counterparts. Similarly, an Australian study found that children in military families reported higher levels of depressive symptoms and family stress (Foreman et al. 2001).

Parental deployment can have an effect on the number of children visiting professionals for mental and behavioural concerns. G Gorman et al. (2010) found that the number of visits for mental and behavioural health disorders in children aged three to eight years increased by 11 per cent when a military parent was deployed. Overall, the number of behavioural disorders increased by 19 per cent and stress disorders increased by 18 per cent (G Gorman et al. 2010). The authors found that older children had larger increases in rates of mental and behavioural health visits during parental deployments. This US study supported earlier findings that young people aged 11 to 17 can experience greater difficulties during parental deployment.

In view of research findings suggesting that adolescents could be at greater risk of behavioural and emotional problems as a result of parental deployment, many studies have tended to focus on this age group. Among the impacts on the wellbeing of adolescents can be the following:

- perceptions of uncertainty and loss
- changes in mental health—anxiety and depression
- relationship conflict—emotional intensity, 'lashing out', changes in the parent–child relationship, and reunion and re-integration difficulties
- externalising behaviour as a way of coping with emotions
- changes in family roles and responsibilities
- changes in family routine during and after deployment
- the deployed parent missing important events
- concerns for personal safety (Huebner et al. 2007; Mmari et al. 2009).

Not all studies have found that young people from military families experience more difficulties than young civilians. In one of the few studies to investigate the psychosocial wellbeing of children from Australian military families, Kaczmarek and Sibbel (2008) compared military families with children of fly-in, fly-out miners and families with little to no parental absence. No significant differences between the family types were found. All families were healthy on measures of depression, anxiety and family functioning. Similarly, few statistically significant differences were found between adolescents from Canadian forces and civilian families on mental health and wellbeing measures (Harrison et al. 2011).

The most important predictor of child psychosocial functioning is the health and wellbeing of the non-deployed parent (Chandra et al. 2010). For example, stress has been found to contribute to reduced quality of maternal care (Posada et al. 2011).

The intergenerational effects of parent deployment on children and adolescents are discussed in greater detail in Chapter 8.

Method

Measures

Analyses for this chapter were conducted using the following measures, which are described in Chapter 3:

- physical health—referring here to reproductive outcomes
- demographics and deployment
  - age and sex
  - number of children
- children's emotions and behaviours
  - the Strengths and Difficulties Questionnaire (SDQ).

The SDQ can be completed by parents, teachers or the young person in question. In this study it was completed by one of the child's parents—the partner of the ADF member. The SDQ explores emotional symptoms, conduct problems, hyperactivity and inattention, and peer relationship problems; measures in these areas are combined to form a total 'difficulties' score. The SDQ also measures positive behaviours such as being kind to others and being helpful; these items are combined to form an outcome measure called the 'prosocial behaviour' score. The final outcome the SDQ measures is the impact that problematic behaviours have on the family; this is called the 'impact' score. Scores on each of the outcomes of the SDQ are then grouped into 'average', 'at-risk' or 'elevated' categories.

Results

Pregnancy outcomes

Partners were asked a series of questions relating to children, pregnancy and possible health concerns for the mother or child. These outcomes are shown in Table 5.1.

Table 5.1 Pregnancy outcomes for Timor-Leste partners and comparison partners

	Timor-Leste partners (*N* = 642)			Comparison partners (*N* = 605)				
Outcome	**Events (*n*)**	**Persons (*N*)**	**Events per 100**	**Events (*n*)**	**Persons (*N*)**	**Events per 100**	**Rate ratio (95% CI)**	***p*-value**
Never had a pregnancy	125	642	19.5	104	605	17.2	1.15 (0.85, 1.55)	0.37
Child born alive	969	611	158.6	980	578	169.6	0.96 (0.88, 1.05)	0.42
Child born alive with presence of a birth defect/abnormality	22	538	4.1	26	516	5.0	0.76 (0.40, 1.43)	0.39
Post-partum								
Child born alive but died within one month of birth	6	539	1.1	2	513	0.4	3.78 (0.56, 25.73)	0.17
Child born alive but died after one month (or more) of birth	4	537	0.7	4	514	0.8	1.16 (0.28, 4.78)	0.84
Total post-partum deaths	10	539	1.9	6	514	1.2	1.70 (0.55, 5.29)	0.36
Pre-partum								
Miscarriage	251	556	45.1	243	532	45.7	0.96 (0.74, 1.25)	0.77
Stillbirth	2	528	0.4	9	512	1.8	0.24 (0.05, 1.22)	0.09
Termination due to child's health	10	532	1.9	8	507	1.6	1.07 (0.27, 4.18)	0.93
Termination due to the mother's health	13	528	2.5	17	512	3.3	0.62 (0.28, 1.41)	0.26
Ectopic pregnancy	15	529	2.8	17	508	3.3	0.94 (0.46, 1.92)	0.86
Total pre-partum deaths	291	556	52.3	294	532	55.3	0.93 (0.73, 1.19)	0.57

Pregnancy outcomes were similar between Timor-Leste partners and comparison partners: 19.5 per cent and 17 per cent of women respectively had never had a pregnancy; and there were four per 100 partners in the Timor-Leste group and five per 100 comparison partners who had a live-born child with a birth defect or abnormality.

The occurrence of post-partum death (death of a child at some point after birth) was two per 100 partners in the Timor-Leste group and one per 100 comparison partners. In the case of post-partum deaths, there were low total numbers of events—10 for Timor-Leste and six for comparison partners. This difference is not statistically significant in part because the post-partum deaths are so rare. To have sufficient statistical power (80 per cent) to detect a relative difference of 50 per cent (that is, an odds ratio of 1.5) between Timor-Leste and comparison partners, a sample size of about 5,300 would be required in both groups. It is thus not possible to draw any firm conclusions from the study. The occurrence of pre-partum deaths (termination of pregnancy because of the health of mother or child, miscarriage, stillbirth or ectopic pregnancy) was 52 per 100 persons in Timor-Leste partners and 55 per 100 persons in comparison partners.

Miscarriages were reported in terms of the number per 100 persons. Individuals may, however, have had more than one miscarriage. Although the rate of miscarriage was 45 per 100 persons in Timor-Leste partners, the percentage of Timor-Leste partners who had miscarriages was 26 per cent (n = 147). The rate of miscarriage was 46 per 100 persons in comparison partners but the percentage of comparison partners who had miscarriages was 29 per cent (n = 154). In other words, of those partners who experienced a miscarriage, there was an average of 1.7 and 1.6 miscarriages per person respectively.

The percentages of Timor-Leste partners (n = 161, 26 per cent) and comparison partners (n = 128, 21 per cent) who responded that they or their partner had visited a doctor to discuss fertility were similar (p = 0.10).

Child demographics

Child demographic variables were measured and are shown in Table 5.2.

Table 5.2 Child demographics for Timor-Leste and comparison partners

Variable	Timor-Leste partners (n = 575)	Comparison partners (n = 538)	p-value
Number children living with partner (Mean (SD))	1.5 (1.1)	1.5 (1.1)	0.79[a]
Child age (Mean (SD))	10.3 (6.9)	11.1 (6.7)	
Sex (n (%))			
Male	412 (49)	405 (52)	
Female	435 (51)	374 (48)	0.18[b]

a. Adjusted for age (20–29, 30–39, 40–49, 50+), sex and education status, and ADF member's rank and Service.
b. Unadjusted chi-square test.

On average, there were 1.5 children per family living at home and aged approximately 11 years. The numbers were very similar between Timor-Leste and comparison families (p = 0.79). The percentage of male to female children was also very similar between Timor-Leste and comparison families (p = 0.18).

Child outcomes

Strengths and Difficulties Questionnaire

The partner completed the Strengths and Difficulties Questionnaire for each child living in their household and aged between four and 17 years. Children aged less than four years were not rated on the SDQ because the questionnaire was not designed for very young children.

The SDQ measures children's prosocial behaviours, total difficulties (that is, a combined score on emotional, conduct, peer problems, and hyperactivity or inattention) and the impact of these behaviours on the family. Scores in the average range indicate a normal presentation of behaviours and are unlikely to be clinically significant; elevated scores indicate that behaviours are slightly raised and might reflect significant problems; scores in the at-risk range indicate a substantial risk of clinically significant behavioural problems.

Figure 5.1 shows the percentages of Timor-Leste (n = 543) and comparison (n = 512) children aged four to 17 years who fell in the average, elevated and at-risk ranges on the parent-rated SDQ.

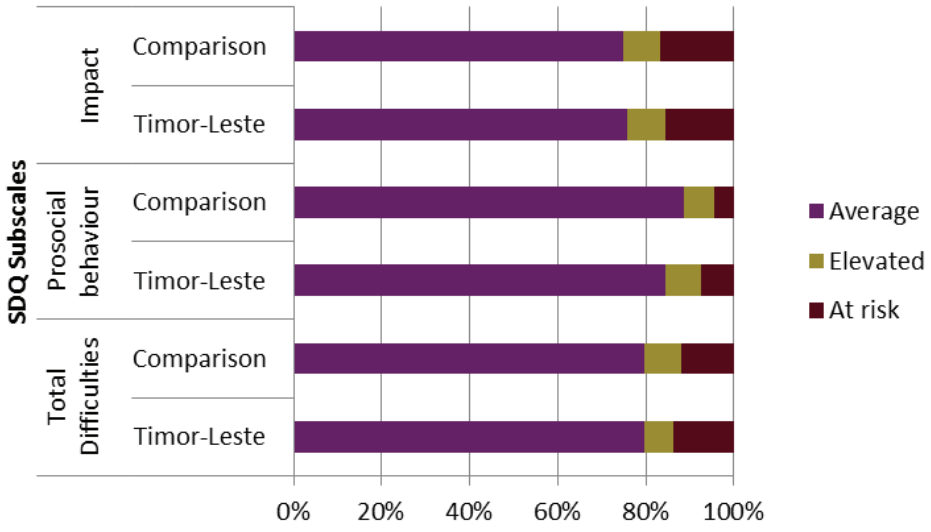


Figure 5.1 Strengths and Difficulties Questionnaire scales for children aged four to 17 years in Timor-Leste and comparison families

There were no statistically significant differences between Timor-Leste and comparison children on the SDQ as rated by their parent. The majority of

children (Timor-Leste, 79.6 per cent; comparison, 79.8 per cent) were found to be functioning within the average range expected for children of the same age on total difficulties—that is, demonstrating a low occurrence of problematic or difficult behaviours (p = 0.48). Similarly, the majority of children (Timor-Leste, 84.5 per cent; comparison, 88.6 per cent) were found to be within the average range expected for children of the same age on prosocial behaviours (p = 0.08). Normative scoring for the SDQ has found that approximately 10 per cent of children have elevated scores on either the prosocial or the total difficulties scales and a further 10 per cent were considered at risk (Youth in Mind 2010).

The difference between Timor-Leste and comparison children approached statistical significance on the prosocial subscale. There were slightly more comparison children whose behaviours were rated in the average range on the SDQ compared with Timor-Leste children, and the proportion of children in the at-risk range was slightly greater in the Timor-Leste children—7.4 per cent compared with 4.4 per cent for the comparison children.

The partners also rated the impact the child's behaviours had on the family. Low impact scores suggest that the behaviours are within the average range; higher impact scores (reflecting greater problems associated with the child's behaviour) are indicative of elevated behavioural problems or children at risk of having a diagnosable behavioural disorder. For most families (Timor-Leste, 75.9 per cent; comparison, 74.7 per cent) the impact of the child's behaviours was within the average range (that is, not problematic) (p = 0.83).

The subscales of the total difficulties scale of the SDQ were also examined—peer problems, hyperactivity, conduct problems and emotional symptoms (see Figure 5.2). The numbers in the average, elevated and at-risk categories for each of these SDQ subscales were not statistically different between the Timor-Leste group and the comparison group.

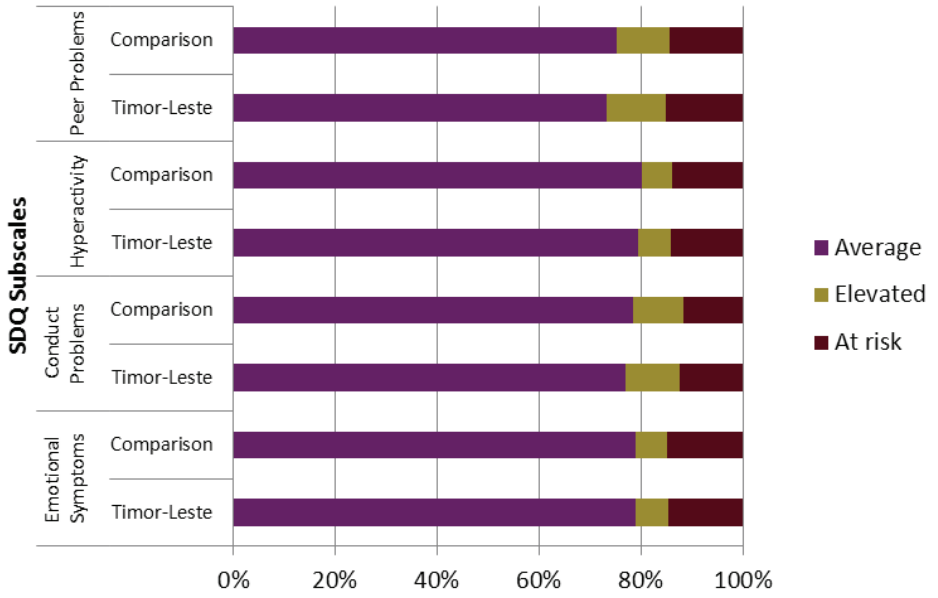


Figure 5.2 Other Strengths and Difficulties Questionnaire subscales for children aged four to 17 years in Timor-Leste and comparison families

The majority of children from both Timor-Leste and comparison families were functioning well and within a normal range of expected behaviours. They demonstrated a normal, healthy range of prosocial behaviours. Approximately 13 per cent of Timor-Leste and comparison children were in the at-risk range of having a clinically significant behavioural problem (as measured by the total difficulties subscale). According to the SDQ website (Youth in Mind 2010), about 10 per cent of children in a community will have elevated scores on either the prosocial or the total difficulties scales and a further 10 per cent will be considered at risk. On this basis, about 80 per cent of children should be in the normal category, as this study found.

Discussion

This chapter investigates pregnancy and child outcomes for Timor-Leste and comparison partners. The Timor-Leste Family Study is the first study of its kind in Australia to look for overt pregnancy outcomes in order to ascertain whether differences exist between the two groups. There were no statistically significant differences between Timor-Leste and comparison partners in relation to pregnancy outcomes (that is, pre-partum and post-partum death rates) or child outcomes (that is, behaviours and emotions). The prevalence of adverse pregnancy outcomes was low and within an expected range.

Since pregnancy outcomes reported in this report are a first for this population, there are no comparative studies involving a similar population. Research with

non–ADF related Australian women conducted for the Australian Longitudinal Study on Women's Health (Loxton & Lucke 2009) found, however, that infertility and pregnancy losses were indeed common occurrences. The researchers found that among women who had tried to conceive or had been pregnant one in six had experienced infertility for 12 months or more. In the Timor-Leste Family Study 23 per cent of partners reported that they or their partner had visited a doctor to discuss fertility. This suggests that experiences of infertility are reasonably consistent among Australian families, including the families of ADF members.

About one in four partners in the Timor-Leste Family Study had experienced a miscarriage. On average, these partners were found to have had 1.2 miscarriages per person. The Australian Longitudinal Study on Women's Health (Loxton & Lucke 2009) found that more than half of women who reported a pregnancy outcome had had a miscarriage. Further, 39 per cent of women who had had a live birth at any time also reported a pregnancy loss. The birth rate and rate of infertility (including factors associated with infertility such as miscarriage) found in the Timor-Leste Family Study are not dissimilar from those found in studies of the general Australian population.

Because of the low prevalence rates for some of the pregnancy outcomes, particularly post-partum deaths, it was not possible to analyse the data to determine relative differences between Timor-Leste partners and comparison partners. Because the prevalence rates were low, however, there appears to be no evidence that deployment to Timor-Leste resulted in a higher rate of adverse pregnancy outcomes.

Families had 1.5 children living at home on average, and the children were about 11 years old. There were about even numbers of male and female children.

Partners who had children aged between four and 17 years and living at home were asked to rate their children on a series of behavioural and emotional questions. Overall, the primary finding was that the majority of children of Timor-Leste and comparison partners were functioning in the average, or 'normal', range. This means that for most children the number of problematic or difficult behaviours rated by parents was low, and the level of prosocial behaviour was high and within the range that would be expected for normally developing children. On average, child outcomes were very similar to Australian norms (Mellor 2005). This suggests that children from Timor-Leste and comparison families are not different in relation to child emotion and behaviour outcomes when compared with other Australian children of the same age.

Limitations

A limitation of this chapter is that only one relatively short measure for child emotion and behaviour outcomes was used. This was necessary because in the broader context of the Timor-Leste Family Study partners (that is, parents) were already completing a range of other questionnaires in order to respond to other research aims for the study. Although the Strengths and Difficulties

Questionnaire has been validated (Goodman 2001) and provides insight into the mental health and wellbeing of children and adolescents, it was not designed to assess physical health outcomes. In particular, the presence or absence of disabilities (physical, mental and/or intellectual) or special needs was not measured in this study, and that is a limitation. Because of the complexity of this area, specific research would be necessary in order to understand the needs of disabled and special-needs children in Australian military families.

The design of a study aimed at measuring intergenerational outcomes for pregnancy is complex. To determine such outcomes would require measurement of partner variables associated with pregnancy and the environment of the ADF member both pre- and post-deployment. The Timor-Leste Family Study was designed to measure overt pregnancy outcomes so that, if statistically significant differences were found between Timor-Leste and comparison partners, this would suggest that further, more complex intergenerational studies were necessary. This was not found to be the case, and no significant differences were found in relation to pregnancy outcomes. Further, to detect a relative difference of 50 per cent (that is, an odds ratio of 1.5) between Timor-Leste and comparison partners at 80 per cent power, a sample size approximating 20,500 would be required for both groups.

Strengths

This is the first Australian study of its kind to assess pregnancy and child outcomes for the partners of ADF members. Previous studies have typically focused on civilians only or on women who were serving or had served in the military. This study helps to expand our knowledge about pregnancy and child outcomes for Australian military families.

6 The impact of deployment factors on the health of families

This chapter investigates whether multiple deployments affect health outcomes. This includes deployment at the time of the survey and the partner's experience of the impact of Timor-Leste deployment on their own physical, mental and family health and that of their children. Chapter 4 finds no consistent differences between Timor-Leste and comparison partners, so data from all partners were combined and analysed in relation to total deployment experience, not just deployment to Timor-Leste. This increased the statistical power and the likelihood of detecting any statistically significant relationships.

Research aim 2

To identify any risk and protective factors associated with any health impacts.

Hypothesis

1. For the partners and children of ADF members, there will be associations between deployment frequency and health impacts.

Main findings

Number of deployments

- The odds of having non-balanced family functioning increased as the number of deployments a family experienced increased.
- A statistically significantly larger proportion of children whose parent had experienced two or more deployments were reported as being in the abnormal category on the total difficulties scale of the Strengths and Difficulties Questionnaire.
- Children from families that had experienced four or more deployments were more commonly reported for displaying low levels of prosocial behaviour.
- More partners rated the impact of the military on their relationship as negative as the number of deployments they experienced increased.
- There was a statistically significant relationship between the number of deployments experienced by the family and an increased likelihood of partners reporting the impact of the ADF member's military commitments as negative for their children.

Current deployment

- A statistically significantly larger proportion of children who had a parent deployed were reported as having difficulties that affected their life and their family.
- Partners whose ADF member was deployed at the time of the survey reported slightly and statistically significantly less conflict in their relationship, compared with comparison partners.

Partners' experience of deployment

- Partners who rated their experience of their ADF member's Timor-Leste deployment as negative had statistically significantly poorer physical health.
- Partners who rated their experience of their ADF member's Timor-Leste deployment as negative were statistically significantly more likely to have poorer mental health scores.
- Partners who rated their experience of their ADF member's Timor-Leste deployment as negative reported statistically significantly higher levels of conflict and lower social support when reviewing the quality of their relationship.

Introduction

The impact of deployment for partners

Studies of military families frequently find that deployment can have a negative impact on the physical, mental and family health of partners. The following are among the deployment-related impacts:

- lower mental and physical wellbeing (Haas & Pazdernik 2007; Padden et al. 2011b; SteelFisher et al. 2008; Everson 2006)
- psychological distress (Andres & Moelker 2011)
- depression (Wheeler 2009)
- Posttraumatic Stress Disorder (Wheeler 2009)
- reduced relationship satisfaction (Andres 2010; de Burgh et al. 2011).

In some studies a higher number of deployments was associated with a higher level of symptoms (Wheeler 2009) and adverse effects increased with longer deployment, extended duty or intermittent deployments (Abbe et al. 1986; de Burgh et al. 2011; Mansfield et al. 2010; Merritt 2010; Rosen 1995; Schumm et al. 1996; SteelFisher et al. 2008). Other studies found that multiple deployments were not associated with worse symptoms and, in some cases, a higher number of deployments led to better coping (Padden et al. 2011b; Warner et al. 2009). It is possible that these differences in findings reflect a

'healthy family' effect; that is, serving members and their families who cope better with deployment are more likely to embark on future deployments.

In most studies health was related to military factors such as prolonged deployment and individual factors such as coping skills (Haas & Pazdernik 2007; SteelFisher et al. 2008). A number of protective factors can ameliorate the negative impacts of deployment for partners:

- older age (Rosen et al. 1994)
- higher rank (Rosen et al. 1994)
- marital satisfaction (Wheeler 2009)
- growing up in a military family (Padden et al. 2011a)
- previous deployment separation (Padden et al. 2011a)
- family cohesiveness (Frankel et al. 1992)
- social support (Haas & Pazdernik, 2007; Rosen & Moghadam 1990; Rosen et al. 1994)—discussed in Chapter 7
- community support (Spera 2009; Wheeler 2009)—discussed in Chapter 7.

What is not clear is whether Australian military families are affected by deployment in the same way as military families from other countries. Differences between the ADF and the forces of other countries, different patterns of deployment and differences in Australian society could lead to different outcomes for Australians compared with military families from other countries.

The impact of deployment for children

Many studies show that military children are generally robust and healthy and adapt well to parental separation and reunion (for example, Andres & Moelker 2011; Chandra et al. 2008; Friedberg & Brelsford 2011). Where there are deployment-related impacts for children, they can be direct or indirect. Direct impacts are related to separation from the deployed parent and military-related stressors such as worrying about their parent's safety (Chandra et al. 2011; Mmari et al. 2010). Indirect impacts are related to factors such as the mental health of the partner and the ADF member, work–family conflict and the level of social support (Al-Turkait & Ohaeri 2008; Andres & Moelker 2011; Chandra et al. 2011). Additionally, children are at higher risk of psychosocial problems when their parent is deployed (White et al. 2011).

Among the consequences of deployment for children are the following:

- psychosocial morbidity (Aranda et al. 2011; Flake et al. 2009)
- emotional and behavioural difficulties (Al-Turkait & Ohaeri 2008; Andres & Moelker 2011; Barker & Berry 2009; Chandra et al. 2011, 2008, 2009; Chartrand et al. 2008; Kelley 2002; Mmari et al. 2009; Rosen et al. 1993; White et al. 2011)

- anxiety (Al-Turkait & Ohaeri 2008; Chandra et al. 2011)
- depression (Al-Turkait & Ohaeri 2008; Andres & Moelker 2011; Chandra et al. 2011; Reed et al. 2011; Wickman et al. 2010)
- changes in academic performance (Andres & Moelker 2011; Chandra et al. 2011).

Deployment-related impacts often differ according to the age and sex of the child (Andres & Moelker 2011; Barker & Berry 2009; Card et al. 2011; Chandra et al. 2011, 2009; L Gorman et al. 2010; Lester et al. 2010; Reed & Segal 2000). Additionally, there can be different impacts at each stage of the deployment cycle (Laser & Stephens 2011). For example, children face different challenges at pre-deployment, deployment and post-deployment (Gewirtz et al. 2011; Laser & Stephens 2011; Riggs & Riggs 2011).

In most studies, problems increased with the number of deployments, and the cumulative length of deployment predicted more challenges for children (Barker & Berry 2009; Chandra et al. 2011, 2009; Lester et al. 2010; Mansfield et al. 2010). One study that examined shorter deployments, of four to six months, found no difference for children related to the type of deployment (that is, risky versus routine) and concluded it is the absence of the parent, rather than the location of the deployment, that matters (Andres & Moelker 2011).

Some deployment-related impacts can persist for several months after reunion, but they are likely to dissipate in the longer term (Andres & Moelker 2011). Some studies found, however, that impacts were negligible (Card et al. 2011), symptoms did not reach clinical levels (Cozza et al. 2005), or symptom levels were comparable to those among civilian youths and to community norms (Harrison et al. 2011; Lester et al. 2010). Some symptoms, such as risk-taking behaviours, were less evident in military children (Wickman et al. 2010). Findings in relation to academic performance are inconsistent and have been attributed to other difficulties in the child's life, such as sleeping problems (Andres & Moelker 2011; Chandra et al. 2011).

Parental deployment can have positive effects on children, such as their becoming more mature, self-sufficient and responsible (Andres & Moelker 2011). Furthermore, military, family and community support can mitigate stress during deployment (Flake et al. 2009).

The majority of these findings are based on US families, and the degree to which they might be generalised to an Australian population is largely unknown.

This present study was designed to explore the effects of Timor-Leste deployment on families. For some families, Timor-Leste deployment could have occurred up to 12 years before the study, but the health questions asked of families concerned their current health. It is therefore important to acknowledge that, for some analyses, the partners' experience of deployment precedes their responses about the state of their health by many years.

Method

For this chapter the primary deployment-related factors noted in the literature were analysed for their influence on physical, mental and family health. Two deployment-related variables were analysed for all partners:

- the number of ADF member deployments experienced by the partner
- whether the ADF member was deployed when their partner completed the questionnaire.

Two additional deployment-related factors were assessed for Timor-Leste partners only:

- the partner's subjective experience of Timor-Leste deployment
- the particular factors associated with Timor-Leste deployment that were difficult or beneficial.

Measures

Analyses for this chapter were conducted using the following measures, which are described in Chapter 3:

- demographics/deployment
  - brief deployment history questionnaire
  - Timor-Leste deployment questions
- physical health
  - Short Form-12 (SF-12) physical health composite scale (PCS)
- mental health
  - Short Form-12 (SF-12) mental health composite scale (MCS)
- family health
  - child emotions and behaviours—Strengths and Difficulties Questionnaire (SDQ)
  - family functioning—Family Adaptability and Cohesion Evaluation Scale (FACES-IV)
  - relationship quality—Quality of Relationships Inventory (QRI).

Results

Analyses

The analysis protocols described in Chapter 4 were used. Additionally, analyses were adjusted for the following variables chosen before the analysis began: age, sex, education, Service and rank.

Number of deployments

The analysis relating to multiple deployments relies on information collected from partners. This choice was made because only 75 per cent of partners had an ADF member who also completed a questionnaire. Too many partners would have been excluded from the analysis if this information had been taken from ADF members only. The research team did not have access to information about deployments other than the deployment to Timor-Leste. As a consequence, Table 6.1 is based on information provided by partners.

The number of deployments partners had experienced with their ADF member ranged from none to five or more. Just over half of the partners had experienced no (28 per cent) or one (25 per cent) deployment; the remainder (47 per cent) had experienced two or more (see Table 6.1).

Table 6.1 Number of deployments partners experienced while together with their ADF member

	Partners[a]	
Number of deployments	***n***	**%**
0	354	28.1
1	316	25.1
2	232	18.4
3	144	11.5
4	81	6.4
5+	131	10.4
Not specified[b]	74	

a. Includes both Timor-Leste and comparison partners.
b. Means missing responses from partners who answered the questionnaire.
Note: *N* = 1,332.

Table 6.2 combines information from two questions. The first question involved partners in completing a table that asked whether their ADF member had deployed to particular locations, such as Afghanistan, Iraq and Timor-Leste. There were also open-response options whereby participants could name an 'other' location not included in the list. The second question asked how many deployments the partner had experienced while together with their ADF member. An additional complexity is that some partners recorded their ADF member's trip to another country—for example, to attend a training course—as a deployment. This trip would not be considered an operational deployment for purposes of compensation or honours and awards. Consequently,

non-operational deployments are not included in any category. It is, however, important to acknowledge that the responding partner thought of them as deployments.

Table 6.2 Locations of deployments partners experienced while together with their ADF member

Number of times deployed	Timor-Leste		Afghanistan		Iraq		Other	
	n	%	*n*	%	*n*	%	*n*	%
1 (*n* = 354)	127	40.2	46	14.6	44	13.9	70	22.2
2 (*n* = 232)	127	54.7	77	33.2	66	28.4	91	39.2
3 (*n* = 144)	94	65.3	47	32.6	43	29.9	74	51.4
4 (*n* = 81)	49	60.5	41	50.6	36	44.4	42	51.9
5+ (*n* = 131)	84	64.1	41	31.3	44	33.6	80	61.1

Note: *N* = 1,332.

The percentages in any row do not add to 100 but instead reflect the percentage of the row total who had deployed to a particular location (excluding non-operational deployments for training or similar purposes). So, of partners who had experienced three deployments, two-thirds had an ADF member who had been to Timor-Leste, one-third to Afghanistan, almost one-third to Iraq, and one-half to a variety of other locations such as Vietnam, Rwanda, Cambodia, Namibia and Indonesia. The exact combination of deployments is variable. Additionally, some partners might have experienced more than one deployment to a particular location, and this is not reflected in the numbers. It is, however, likely that partners who reported multiple deployments had also experienced more recent deployments to more hazardous environments such as Afghanistan or Iraq.

Number of deployments and effects on physical health

Physical health was measured by the physical health composite scale of the SF-12. Scores on the SF-12 range from 0 to 100, with a mean of 50 (SD = 10). Scores of 40 or below indicate low levels of health; scores of 60 or above indicate exceptionally good health. Table 6.3 shows the results.

Table 6.3 Association between number of deployments and partners' physical health as measured by the SF-12

Number of deployments while together	*n*	Mean	SD	Mean difference	(95% CI)	Adjusted mean difference	(95% CI)[a]	*p*-value
0	332	51.9	9.7	0.00	Baseline	0.00	Baseline	
1	284	51.3	9.6	–0.65	(–2.10, 0.80)	-0.87	(–2.33, 0.60)	0.25
2	209	53.4	8.1	1.51	(–0.08, 3.10)	0.83	(–0.79, 2.45)	0.32
3	131	52.3	9.8	0.43	(–1.44, 2.30)	0.07	(–1.81, 1.93)	0.95
4	73	51.6	10.1	–0.34	(–2.70, 2.01)	-0.68	(–3.03, 1.67)	0.57
5+	120	51.1	9.5	–0.82	(–2.75, 1.12)	-0.45	(–2.41, 1.56)	0.66

a. Adjusted mean difference of partners' SF-12 PCS scores by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+ years), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,332; *N* adjusted = 1,163.

The number of deployments was not associated with any statistically significant difference in the physical health scores of partners.

Number of deployments and effects on mental health

Mental health was measured by the mental health composite score of the SF-12. Scores on the SF-12 range from 0 to 100, with a mean of 50 (SD = 10). Scores of 40 or below indicate low levels of health; scores of 60 or above indicate exceptionally good health. Table 6.4 shows the results.

Table 6.4 Association between number of deployments and partners' mental health as measured by the SF-12

Number of deployments while together	*n*	Mean	SD	Mean difference	(95% CI)	Adjusted mean difference	(95% CI)[a]	*p*-value
0	332	47.5	11.3	0.00	Baseline	0	Baseline	
1	284	49.1	10.8	1.64	(–0.10, 3.39)	1.41	(–0.36, 3.18)	0.11
2	209	46.4	11.1	–1.09	(–3.01, 0.82)	–1.00	(–2.95, 0.96)	0.32
3	131	47.5	11.8	0.04	(–2.21, 2.29)	–0.15	(–2.41, 2.10)	0.90
4	73	46.9	11.2	–0.58	(–3.42, 2.26)	–0.12	(–2.95, 2.72)	0.94
5+	120	47.6	11.5	0.11	(–2.21, 2.44)	–0.30	(–2.72, 2.11)	0.81

a. Adjusted mean difference of partners' SF-12 MCS scores by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,332; *N* adjusted = 1,163.

There was no association between the number of deployments experienced and the reported mental health scores of partners.

Number of deployments and effect on family health

Family functioning was assessed using FACES-IV, which measures the level of cohesion and flexibility within families. Families can be balanced, indicating they are more likely to function well and adapt to crisis and change, or non-balanced,

indicating they are at risk of problematic functioning. Table 6.5 shows the results.

Table 6.5 Association between number of deployments and family functioning as reported by partners and measured by FACES-IV

Number of deployments while together	Balanced family type (*n* = 925, 92.1%)		Non-balanced family type (*n* = 79, 7.9%)				
	n	%	*n*	%	OR	(95% CI)	*p*-value
0	258	27.9	23	8.3	1.00	Baseline	
1	227	24.5	24	9.6	1.29	(0.69,2.38)[a,b]	0.43
2	168	18.2	13	7.2	0.87	(0.42,1.80)[a,b]	0.71
3	106	11.5	11	9.4	1.17	(0.54,2.53)[a,b]	0.69
4	62	6.7	4	6.2	0.73	(0.24,2.20)[a,b]	0.57
5+	104	11.2	4	3.7	0.54	(0.17,1.66)[a,b]	0.28

a. FACES family type—non-balanced vs balanced.
b. Adjusted for partners' age (18–29, 30–39, 40–49, 50+ years), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,004; *N* adjusted model = 982.

There was no association between the number of deployments experienced and family functioning being classified as non-balanced. There was some marginal evidence that the odds of having non-balanced family functioning increased as the number of deployments increased ($\chi^2 = 21.48$, $p = 0.04$), suggesting a trend of increased risk of poorer family health with an increased number of deployments.

Number of deployments and effect on quality of relationship

The QRI measures perceptions of social support in the relationship, the extent to which the relationship was a source of conflict and ambivalence, and how positive, secure and important their relationship is with their partner (referred to as 'depth'). Scores range from 1 to 4. Higher scores on the social support and depth scales represent more positive outcomes. Higher scores on the conflict scale suggest more conflict. Table 6.6 shows the results.

Table 6.6 Association between number of deployments and quality of relationship as reported by partners and measured by the QRI

Number of deployments while together	*n*	%	Mean	Mean difference	(95% CI)	Adjusted mean difference	(95% CI)[a]	*p*-value
Social support (*N* = 1,332; *N* adjusted = 1,181)								
0	327	27.0	3.41	0	Baseline	0	Baseline	
1	292	24.1	3.46	0.05	(–0.04, 0.14)	0.05	(–0.05, 0.15)	0.30
2	218	18.0	3.36	–0.05	(–0.16, 0.05)	–0.04	(–0.15, 0.06)	0.43
3	135	11.2	3.41	0.00	(–0.12, 0.12)	0.00	(–0.12, 0.13)	0.94
4	76	6.3	3.42	0.01	(–0.14, 0.16)	0.02	(–0.13, 0.17)	0.79
5+	121	10.0	3.38	–0.03	(–0.16, 0.09)	0.00	(–0.12, 0.14)	0.92
Depth (*N* = 1,332; *N* adjusted = 1,165)								
0	327	27.5	3.58	0	Baseline	0	Baseline	
1	280	23.5	3.55	–0.03	(–0.09, 0.04)	–0.04	(–0.10, 0.03)	0.31
2	216	18.2	3.50	–0.08	(–0.15, –0.01)	–0.07	(–0.15, 0.00)	0.05
3	136	11.4	3.50	–0.08	(–0.17, 0.00)	–0.09	(–0.18, –0.01)	0.04
4	73	6.1	3.54	–0.04	(–0.15, 0.07)	–0.03	(–0.14, 0.07)	0.54
5+	117	9.8	3.47	–0.11	(–0.20, –0.02)	–0.09	(–0.18, 0.01)	0.07
Conflict (*N* = 1,332; *N* adjusted = 1,132)								
0	319	27.6	1.82	0	Baseline	0	Baseline	
1	280	24.2	1.81	–0.02	(–0.11, 0.07)	–0.02	(–0.11, 0.08)	0.70
2	203	17.6	1.90	0.08	(–0.02, 0.18)	0.08	(–0.03, 0.18)	0.15
3	125	10.8	1.81	–0.01	(–0.13, 0.11)	–0.01	(–0.13, 0.10)	0.81
4	72	6.2	1.87	0.05	(–0.10, 0.20)	0.06	(–0.09, 0.21)	0.40
5+	121	10.5	1.93	0.09	(–0.03, 0.21)	0.09	(–0.04, 0.21)	0.17

a. Adjusted mean difference of partners' QRI scales by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: All items on the QRI were rated on a 4-point Likert scale (1—'not at all'; 4—'very much').

The number of deployments experienced was not associated with social support or conflict in relationships as reported by partners. Partners who had been with their ADF member for either two or three deployments reported slightly but statistically significantly lower levels of depth (how positive, secure and important the relationship is). Since the maximum score on this scale is 4, the adjusted mean difference was less than 0.1 of one point and since partners were reporting high levels of depth in their relationship (Mean = 3.5), there is little meaning to this finding.

Number of deployments and effect on intimate partner violence

The WAST (Woman Abuse Screening Tool) screens for and measures intimate partner violence or partner abuse. Approximately 10 per cent of partners screened positively for abuse on this measure. Table 6.7 shows the results.

Table 6.7 Association between number of deployments and positive screening scores on the Woman Abuse Screening Tool

Number of deployments while together	Screen for IPV: Positive (*n* = 114, 9.1%)		Screen for IPV: Negative (*n* = 1,144, 90.9%)				
	n	%	*n*	%	OR	(95% CI)[a]	*p*-value
0	28	7.9	326	92.1	1.00	Baseline	
1	28	8.9	288	91.1	0.97	(0.55,1.72)	0.92
2	20	8.6	212	91.4	1.02	(0.55,1.90)	0.95
3	14	9.7	130	90.3	1.23	(0.62,2.43)	0.56
4	10	12.3	71	87.7	1.63	(0.74,3.58)	0.22
5+	14	10.7	117	89.3	1.89	(0.91,3.94)	0.09

a. Adjusted mean difference of partners' QRI scales by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,258; *N* adjusted = 1,222.

There was no statistically significant difference between partners who had not experienced a deployment while together with their ADF member and partners who had experienced one, two, three, four, five or more deployments.

Number of deployments and effect on children

The participating partner completed the Strengths and Difficulties Questionnaire for each child aged between four and 17 years and living in the household. The SDQ measures children's prosocial behaviour (that is, positive, helping behaviour), total difficulties (that is, combined score on emotional, conduct and peer problems, and hyperactivity or inattention) and the impact of these behaviours on the family (the impact supplement). The 'abnormal' category in the tables includes the 'at-risk' scores. For prosocial behaviours, the 'abnormal' category suggests low levels of positive behaviour. In contrast, for the total difficulties scale and the impact supplemental scale, 'abnormal categories' suggest higher levels of negative behaviours or outcomes. Table 6.8 shows the results.

Table 6.8 Association between number of deployments and children's prosocial behaviour scores on the SDQ as reported by partners

Number of deployments while together	Normal prosocial behaviour score (*n* = 986, 94.1%)		Abnormal prosocial behaviour score (*n* = 62, 5.9%)				
	n	%	*n*	%	OR	(95% CI)	*p*-value
0	241	96.4	9	3.6	1.00	Baseline	
1	230	95.0	12	5.0	1.40	(0.59,3.29)[a,b]	0.44
2	205	94.0	13	6.0	1.89	(0.84,4.24)[a,b]	0.13
3	114	93.4	8	6.6	2.03	(0.78,5.29)[a,b]	0.15
4	76	90.5	8	9.5	3.09	(1.27,7.49)[a,b]	0.01
5+	120	90.9	12	9.1	2.63	(1.21,5.72)[a,b]	0.02

a. Abnormal prosocial behaviour (score of 0–4) vs normal prosocial behaviour (score of 5–10) by number of deployments while partner together with ADF member.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
Note: *N* = 1,048.

Children who were part of a family that had experienced four or more deployments were reported as being in the category indicating abnormal (low) levels of prosocial behaviours statistically significantly more often than children whose families had not experienced deployment. A test for trend (Z = −2.63, $p = 0.009$) was conducted and provided evidence that the odds of having abnormal prosocial behaviour increased with an increasing number of deployments.

Table 6.9 Association between number of deployments and children's total difficulties scores on the SDQ as reported by partners

Number of deployments while together	Normal difficulties score *N* = 1012 (*n* = 888, 87.8%)		Abnormal difficulties score *N* = 1,012 (*n* = 124, 12.3%)				
	n	%	*n*	%	OR	(95% CI)	*p*-value
0	224	92.6	18	7.4	1.00	Baseline	
1	208	88.1	28	11.9	1.70	(0.95,3.06)[a,b]	0.08
2	181	86.2	29	13.8	2.18	(1.26,3.78)[a,b]	0.01
3	98	85.2	17	14.8	2.09	(1.09,4.02)[a,b]	0.03
4	69	86.3	11	13.8	1.96	(0.99,3.86)[a,b]	0.053
5+	108	83.7	21	16.3	2.25	(1.10,3.67)[a,b]	0.02

a. Abnormal (high) total difficulties (score 17–40) vs normal total difficulties (score 0–16) by number of deployments while partner together with ADF member.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
Note: *N* = 1,015.

A test for trend (Z = −2.60, $p = 0.009$) showed that there is statistically significant evidence that the odds of a child having an abnormal (high) total difficulties score increase with more deployments (see Table 6.9).

A statistically significantly larger proportion of children whose parent had experienced two or more deployments were reported as being in the abnormal (high) category on total difficulties. The percentage of children in each deployment group displaying difficulties did not differ significantly from zero deployments to one deployment.

The subscales of the total difficulties scale were also examined. The emotional symptoms and hyperactivity subscales showed marginal evidence that the odds for abnormal outcomes increased with increasing numbers of deployments (tests for trend [Z = –1.583, p = 0.06] and [Z = –1.47, p = 0.07] respectively). Tables 6.10 to 6.12 show the results.

Table 6.10 Association between number of deployments and children's peer problems subscale scores on the SDQ as reported by partners

Number of deployments while together	Normal peer problems score *N* = 1,037 (*n* = 887, 85.5%)		Abnormal peer problems score *N* = 1,037 (*n* = 150, 14.5%)				
	n	%	*n*	%	OR	(95% CI)	*p*-value
0	219	88.3	29	11.7	1.00	Baseline	
1	210	87.5	30	12.5	1.02	(0.62,1.67)[a,b]	0.94
2	184	85.6	31	14.4	1.34	(0.81,2.21)[a,b]	0.25
3	101	84.2	19	15.8	1.39	(0.81,2.39)[a,b]	0.23
4	68	81.0	16	19.1	1.72	(0.97,3.04)[a,b]	0.06
5 or more	105	80.8	25	19.2	1.59	(0.93,2.73)[a,b]	0.09

a. Abnormal (peer problems score 4–10) vs normal (peer problems score 0–3) difficulties by number of deployments while partner together with ADF member.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
Note: *N* = 1,015.

On the peer problems subscale the test for trend was statistically significant (Z = –2.468, p = 0.01). The odds of having abnormal peer problems increased with more deployments. This was similar for the hyperactivity subscale.

Table 6.11 Association between number of deployments and children's hyperactivity subscale scores on the SDQ as reported by partners

Number of deployments while together	Normal hyperactivity score *N* = 1,037 (*n* = 887, 85.5%)		Abnormal hyperactivity score *N* = 1,037 (*n* = 150, 14.5%)				
	n	%	*n*	%	OR	(95% CI)	*p*-value
0	205	88.7	26	11.3	1.00	Baseline	
1	195	85.5	33	14.5	1.33	(0.82,2.16)[a,b]	0.25
2	174	84.5	32	15.5	1.48	(0.94,2.34)[a,b]	0.09
3	95	85.6	16	14.4	1.24	(0.65,2.34)[a,b]	0.51
4	58	78.4	16	21.6	2.03	(1.22,3.38)[a,b]	0.01
5+	102	84.3	19	15.7	1.31	(0.73,2.34)[a,b]	0.37

a. Abnormal (hyperactivity score 7–10) vs normal (hyperactivity score 0–6) difficulties by number of deployments while partner together with ADF member.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
Note: *N* = 1,015.

Similarly, on the hyperactivity subscale the test for trend was statistically significant (Z = −1.648, $p = 0.0496$). The odds of having abnormal hyperactivity increased with more deployments. As might be expected, the overall pattern of results for the subscales of the total difficulties scale was similar to the results found for the entire scale.

Table 6.12 Association between number of deployments and children's impact of difficulties score on the SDQ as reported by partners

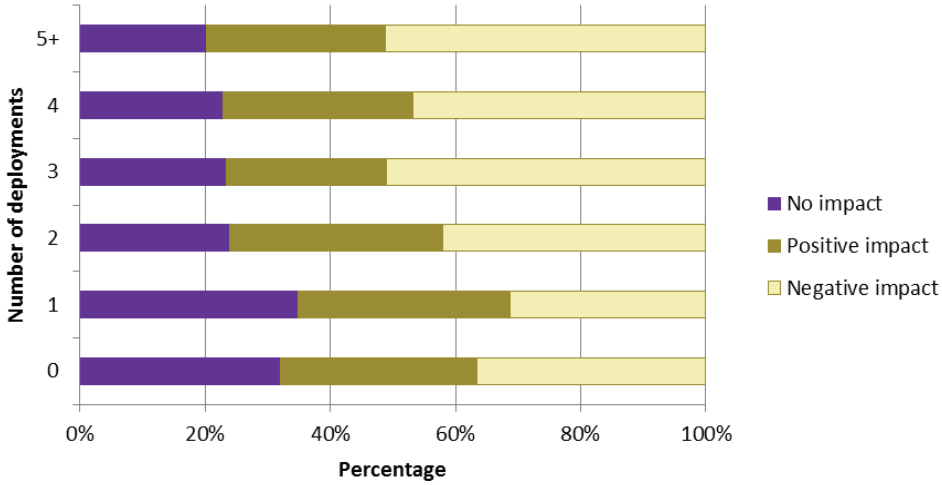
Number of deployments while together	Normal impact (*n* = 840, 84.3%)		Abnormal impact (*n* = 156, 15.7%)				
	n	%	*n*	%	OR	(95% CI)	*p*-value
0	206	84.8	37	15.2	1.00	Baseline	-
1	198	86.8	30	13.2	0.89	(0.55,1.45)[a,b]	0.64
2	176	87.1	26	12.9	0.95	(0.59,1.55)[a,b]	0.85
3	95	82.6	20	17.4	1.15	(0.68,1.95)[a,b]	0.61
4	63	80.8	15	19.2	1.27	(0.70,2.31)[a,b]	0.43
5+	102	78.5	28	21.5	1.20	(0.73,2.98)[a,b]	0.48

a. Abnormal impact (score ≥ 2) vs normal impact (score of 0 or 1) by number of deployments while together.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
Note: *N* = 996.

The impact scale is an addition to the SDQ and assesses whether any difficulties the child is having impact on their family and school life. The number of deployments experienced was not associated with any statistically significant difference in the proportion of children scoring in the abnormal impact category, although the percentage of children whose difficulties affected their life increased after three deployments. The test for trend was not significant (Z = −1.99, $p = 0.480$).

Number of deployments and ratings of impact on relationships and children

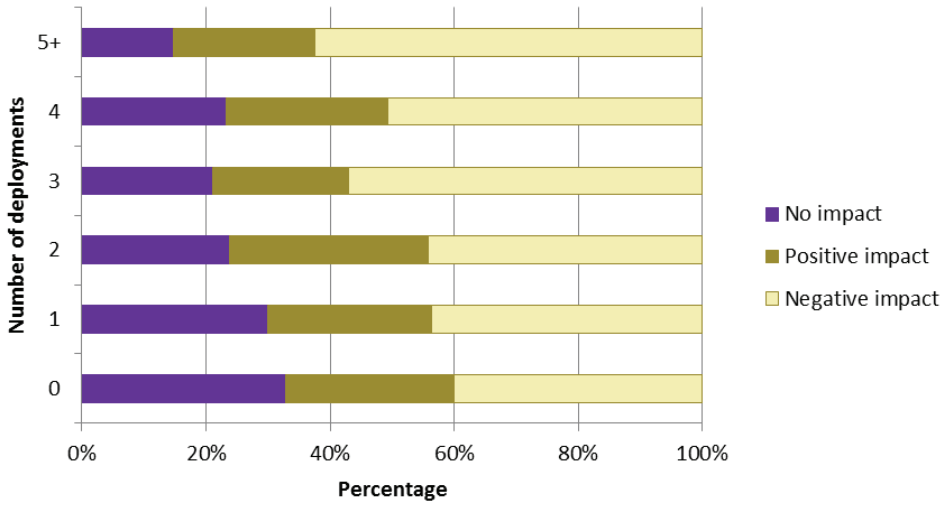
Partners were asked about the impact the ADF member's military commitments had on their marriage or relationship and children (see Figure 6.1).



Note: *N* = 1,239; *N* not specified = 93.

Figure 6.1 Partners' rating of the impact of military commitments on marriage or relationships, by number of deployments

The groups were statistically significantly different from each other ($\chi^2 = 32.5$, $df = 10$, $p < 0.0001$). The proportion of partners rating the impact of the military as negative increased as the number of deployments increased. After three deployments, more than half of partners reported that they perceived the impact of the military on their relationship to be negative; this compares with about one-third of partners at one or no deployment. After three deployments, however, there was still a proportion (20 per cent) of partners who perceived that the overall impact of the military had been positive.



Note: *N* = 1,180; *N* not specified = 152.

Figure 6.2 Partners' rating of the impact of military commitments on children, by number of deployments

Partners were also able to rate the impact of the ADF member's military commitments on their children (see Figure 6.2). The groups were statistically significantly different from each other (χ^2 = 28.1, *df* = 10, *p* = 0.002). For the third deployment, there was a 13 per cent increase (from 44 to 57 per cent) in the proportion of partners who responded that military commitments had a negative impact on their children. There was an additional increase for five or more deployments (from 51 to 62 per cent).

Summary: number of deployments

Only children's prosocial behaviour scores and the total difficulties (including hyperactivity and peer problems) they experienced were negatively associated with deployment. There were no statistically significant associations for partners. A test of trend suggested that the odds of having a non-balanced family increased as the number of deployments increased, but there was no clear evidence of other negative outcomes with increasing numbers of deployments.

Current deployment

In response to differences reported in the literature, the questionnaire included the question 'Is your partner currently deployed?'. There was not a follow-up question asking the location of the current deployment but, given current operations, it would be reasonable to assume that a significant proportion were currently deployed to Afghanistan. Only a very small number of partners (*n* = 86, 8 per cent) responded that their ADF member was deployed at the time of the survey (not currently deployed = 987, 92 per cent; not specified = 259).

Current deployment and effect on physical health

Physical health was measured by the physical health composite scale of the SF-12. Scores on the SF-12 range from 0 to 100, with a mean of 50 (SD = 10). Scores of 40 or below indicate low levels of health; scores of 60 or above indicate exceptionally good health. Table 6.13 shows the results.

Table 6.13 Adjusted mean differences of partners' SF-12 PCS scores by ADF member deployed at time of survey

ADF member deployed now?	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[(b)]	*p*-value
No	891	51.9	9.1	0	Baseline	0	Baseline	
Yes	81	53.9	10.4	2.04	(–0.06, 4.14)	1.61	(–0.50, 3.72)	0.13
Not specified	218	51.4	10.2					

a. Crude mean difference of partners' SF-12 PCS by number of deployments while together.
b. Adjusted mean difference of partners' SF-12 PCS by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,332; *N* adjusted = 950.

There was no statistically significant association between the ADF member being deployed at the time of the survey and their partner's physical health.

Current deployment and effects on mental health

Mental health was measured by the mental health composite scale of the SF-12. Scores on the SF-12 range from 0 to 100, with a mean of 50 (SD = 10). Scores of 40 or below indicate low levels of health; scores of 60 or above indicate exceptionally good health. Table 6.14 shows the results.

Table 6.14 Adjusted mean differences of partners' SF-12 MCS scores by ADF member deployed at time of survey

ADF member deployed now?	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
No	891	48.0	11.3	0	Baseline	0	Baseline	
Yes	81	45.8	11.0	–2.22	(–4.80, 0.35)	–1.80	(–4.37, 0.77)[b]	0.17
Not specified	218	47.4	11.4					

a. Crude mean difference of partners' SF-12 MCS by number of deployments while together.
b. Adjusted mean difference of partners' SF-12 MCS by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,332; *N* adjusted = 950.

There was no statistically significant association between the ADF member being deployed at the time of the survey and their partner's mental health.

Current deployment and effect on family health

Family functioning was assessed using FACES-IV, which measures the level of cohesion and flexibility within families. Families can be balanced, suggesting they are more likely to function well and adapt to crisis and change, or

non-balanced, suggesting they are at risk of problematic functioning. Table 6.15 shows the results.

Table 6.15 Association between partners who reported the ADF member was deployed at the time of survey and family functioning as measured by FACES-IV

ADF member deployed now?	Balanced family type (*n* = 957, 92.0%)		Non-balanced family type (*n* = 83, 8.0%)				
	N	%	*N*	%	OR	(95% CI)[a]	*p*-value
No	717	92.0	62	8.0	1.00	Reference	
Yes	67	91.8	6	8.2	1.03	(0.42,0.2.53)[a]	0.94
Not specified	173	92.0	15	8.0			

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 884.

There was no statistically significant association between the ADF member being deployed at the time of the survey and balanced or non-balanced family functioning.

Current deployment and effect on the quality of relationship

The QRI measures perceptions of social support in the relationship, the extent to which the relationship was a source of conflict and ambivalence, and how positive, secure and important their relationship is with their partner (referred to as 'depth'). Scores range from 1 to 4. Higher scores on the social support and depth scales represent more positive outcomes. Higher scores on the conflict scale suggest more conflict. Table 6.16 shows the results.

Table 6.16 Association between partners who reported the ADF member was deployed at the time of survey and quality of relationship as measured by the QRI

ADF member deployed now?	*n*	%	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Social support (*N* = 1,332; *N* adjusted = 974)								
No	915	91.8	3.39		Baseline		Baseline	
Yes	82	8.2	3.44	0.05	(–0.09, 0.19)	0.02	(–0.12, 0.16)[b]	0.76
Not specified	213		3.34					
Depth (*N* = 1,332; *N* adjusted = 955)								
No	895	91.9	3.50		Baseline		Baseline	
Yes	79	8.1	3.48	0.03	(–0.08, 0.13)	0.03	(–0.07, 0.13)[b]	0.61
Not specified	216		3.53					
Conflict (*N* = 1,332; *N* adjusted = 929)								
No	875	92.4	1.87		Baseline		Baseline	
Yes	72	7.6	1.65	–0.22	(–0.36, –0.07)[a]	–0.22	(–0.36, –0.07)	0.01
Not specified	209		1.85					

a. Crude mean difference of partners' QRI scales by ADF member deployed at the time of the survey.
b. Adjusted mean difference of QRI scales by ADF member deployed at the time of the survey, adjusted for partners' age (18–29, 30–39, 40–49, 50+ years), sex and education level, and ADF members' rank and Service.
Note: All items on the QRI were rated on a 4-point Likert scale (1—'not at all'; 4—'very much').

Partners whose ADF member was deployed at the time of the survey reported slightly and statistically significantly *less* conflict than partners whose ADF member was not deployed.

Current deployment and effect on children

The participating parent completed the Strengths and Difficulties Questionnaire for each child aged between four and 17 years and living in the household. The SDQ measures children's strengths (that is, prosocial behaviours), total difficulties (that is, combined score on emotional, conduct, peer problems, and hyperactivity or inattention) and the impact of these behaviours on the family. The 'abnormal' category in the tables includes the at-risk scores. Table 6.17 shows the outcomes.

Table 6.17 Overall strengths and difficulties experienced by children of ADF members deployed at the time of the survey as reported by partners and measured by the SDQ

ADF member deployed at time of survey	Normal outcomes		At risk outcomes				
	n	%	*n*	%	OR	(95% CI)	*p*-value
Prosocial score *N* = 912 (*n* = 60, 6.6%)							
No	781	93.2	57	6.8	1.00	Baseline	
Yes	68	95.8	3	4.2	0.63	(0.22,1.83)[a,b]	0.40
Total difficulties score *N* = 475 (*n* = 57, 12.0%)							
No	701	86.7	108	13.3	1.00	Baseline	
Yes	53	77.9	15	22.1	1.53	(0.95,2.45)[a,c]	0.08
Impact score *N* = 858 (*n* = 138, 16.1%)							
No	674	85.0	120	15.0	1.00	Baseline	
Yes	44	71.0	18	29.0	1.94	(1.31,2.89)[a,d]	0.001

a. Abnormal prosocial behaviour (score of 0–4) vs normal prosocial behaviour (score of 5–10) by ADF member deployed at time of survey.
b. Abnormal total difficulties (score 17–40) vs normal total difficulties (score 0–16) by ADF member deployed at time of survey.
c. Abnormal impact (score ≥ 2) vs normal impact (score of 0 or 1) by ADF member deployed at time of survey.
d. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.

There was no statistically significant association between whether the ADF member was deployed at the time of the survey and the total difficulties or prosocial subscales on the SDQ. A statistically significantly larger proportion of children who had a parent deployed were, however, reported as having difficulties that impacted on their life and their family.

Summary: current deployment

Only children's impact scores were negatively associated with the current deployment of the ADF member. There were no statistically significant impacts for partners, and there was no clear evidence of other negative outcomes

associated with the ADF member being deployed when their partner completed the survey.

Partners' experience of Timor-Leste deployment

The analysis in this chapter so far focuses on how deployment affected all partners and their children. The analysis in this section explores the particular experiences of partners whose ADF member deployed to Timor-Leste.

Partners were asked to rate their overall experience during Timor-Leste deployment. Almost half (47 per cent) chose the neutral response of 'neither negative or positive'. Of the remainder, more rated their experiences positively ('positive' *n* = 125, 27 per cent; 'very positive' *n* = 30, 7 per cent) than negatively ('negative' *n* = 71, 15 per cent; 'very negative' *n* = 20, 4 per cent) (not specified = 246).

Partners' experience of Timor-Leste deployment and effects on physical health

Physical health was measured by the physical health composite scale of the SF-12. Table 6.18 shows the results.

Table 6.18 Association between partners' experience of Timor-Leste deployment and physical health as measured by the SF-12

Experience of deployment	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Very positive/ positive	138	52.9	8.3	0	Baseline	0	Baseline	
Neither positive nor negative	202	52.2	9.0	–0.73	(–2.76, 1.27)[a]	–1.84	(–3.90, 0.22)[b]	0.08
Negative/very negative	85	51.3	11.0	–1.57	(–2.82, 0.33)[a]	–1.92	(–3.18, –0.65)[b]	0.01

a. Crude mean difference of partners' SF-12 PCS scores by experience of Timor-Leste deployment.
b. Mean difference of partners' SF-12 PCS scores by experience of Timor-Leste deployment adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 697; *N* adjusted = 416.

Partners who rated their Timor-Leste deployment experience as negative had statistically significantly poorer physical health compared with partners who rated their experience as positive. The mean scores for physical health were above average.

Partners' experience of Timor-Leste deployment and effects on mental health

Mental health was measured by the mental health composite scale of the SF-12. Scores on the SF-12 range from 0 to 100, with a mean of 50 (SD = 10). Scores of 40 or below indicate low levels of health; scores of 60 or above indicate exceptionally good health. Table 6.19 shows the results.

Table 6.19 Association between partners' experience of Timor-Leste deployment and mental health as measured by the SF-12

Experience of deployment	*n*	Mean	SD	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Very positive/ positive	138	51.3	10.3	0	Baseline	0	Baseline	
Neither positive nor negative	202	48.0	11.0	–3.28	(5.71, –0.86)[a]	–2.66	(–5.18, 0.14)[b]	0.04
Negative/very negative	85	46.8	12.8	–4.47	(–6.00, –2.97)[a]	–4.13	(–5.67, –2.58)[b]	<0.001

a. Crude mean difference of partners' SF-12 MCS scores by experience of Timor-Leste deployment.
b. Mean difference of partners' SF-12 MCS scores by experience of Timor-Leste deployment adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 697; *N* adjusted = 416.

Partners who rated their experience during Timor-Leste deployment as negative were statistically significantly more likely to have poorer mental health scores compared with partners who rated their deployment experience as positive.

Partners' experience of Timor-Leste deployment and effects on family health

No statistically significant relationship was found between the partners' rating of their experiences during Timor-Leste deployment and family functioning using FACES-IV.

Partners' experience of Timor-Leste deployments and effect on quality of relationship

The QRI measures perceptions of social support in the relationship, the extent to which the relationship was a source of conflict and ambivalence, and how positive, secure and important their relationship is with their partner (referred to as 'depth'). Scores range from 1 to 4. Higher scores on the social support and depth scales represent more positive outcomes. Higher scores on the conflict scale suggest more conflict. Table 6.20 shows the results.

Table 6.20 Association between partners' experience of Timor-Leste deployments and quality of relationship as measured by the QRI

Experience of deployment	*n*	%	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Social support (*N* = 697; *N* adjusted = 437)								
Very positive/ positive	151	33.9	3.50	0	Baseline	0	Baseline	
Neither positive nor negative	205	46.1	3.48	–0.02	(–0.14, 0.10)[a]	–0.05	(–0.18, 0.07)[b]	0.42
Negative/very negative	89	20.0	3.32	–0.18	(–0.25, –0.10)[a]	–0.18	(–0.26, –0.11)[b]	<0.001
Depth (*N* = 697; *N* adjusted = 428)								
Very positive/ positive	149	33.9	3.50	0	Baseline	0	Baseline	
Neither positive nor negative	201	45.8	3.56	0.06	(–0.03, 0.15)[a]	0.06	(–0.03, 0.16)[b]	0.19
Negative/very negative	86	19.6	3.49	–0.01	(–0.07, 0.05)[a]	–0.01	(–0.07, 0.05)[b]	0.73
Conflict (*N* = 697; *N* adjusted = 406)								
Very positive/ positive	139	33.7	1.75	0	Baseline	0	Baseline	
Neither positive nor negative	195	47.2	1.81	0.06	(–0.05, 0.18)[a]	0.09	(–0.03, 0.21)[b]	0.14
Negative/very negative	79	19.1	1.94	0.19	(0.12, 0.27)[a]	0.21	(0.13, 0.28)[b]	<0.001

a. Crude mean difference of partners' QRI scales by partners' experience of Timor-Leste deployment.
b. Adjusted mean difference of QRI scales by partners' experience of Timor-Leste deployment, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: All items on the QRI were rated on a 4-point Likert scale (1—'not at all'; 4—'very much').

A statistically significant relationship was found between the partners' rating of their experience of Timor-Leste deployment and the quality of their relationship.

Partners who rated their experience of Timor-Leste deployment as negative reported statistically significantly higher conflict and lower social support in their relationship with their ADF member compared with those who rated their deployment experience as positive. The partners' experience of Timor-Leste deployment was not associated with any differences in perceived relationship depth.

Summary: partners' experience of Timor-Leste deployment

Partners who rated their experience of Timor-Leste deployment as negative had statistically significantly worse physical and mental health and more conflict and less social support in their relationship when compared with partners who rated the deployment as neutral or positive.

There is a caveat to this. The cross-sectional nature of the research means that had negative outcomes been chosen to represent the baseline the following would be equally appropriate: partners who rated their experience of Timor-Leste deployment as positive had statistically significantly better physical and mental health and less conflict and more social support in their relationship when compared with partners who rated the deployment as negative or neutral.

Difficult aspects of Timor-Leste deployment for families

Partners were asked to indicate, from a list of options, whether they or their children found any aspects of Timor-Leste deployment difficult to deal with. They were able to endorse as many items as they felt applied to them. Table 6.21 shows the results.

Table 6.21 Difficult aspects of deployment for partners and children as listed by Timor-Leste partners

	Partners		Children	
Difficult aspects of deployment	***n***	**%**	***n***	**%**
Deployed member missing activities and special dates, e.g. birthdays	242	49.6	183	37.5
Missing deployed member	338	69.3	218	44.6
Worrying about deployed member's safety	271	55.5	124	25.4
Readjustment to life with returned member	193	39.6	138	28.3
Responsibilities of running the home alone	172	35.3	..	..
Being a single parent	137	28.1	..	..
Exposure to media coverage of the deployment	66	13.5	..	..
Chores	72	14.8	..	..
Finances	40	8.2	..	..
Feeling misunderstood by other people	86	17.6	..	..
Additional responsibilities with only one parent	..	..	91	18.7
Dealing with parent stress	..	..	106	21.7
Loneliness	..	..	62	12.7
Getting to know their deployed parent again	..	..	107	21.9
Can't remember	18	3.7	6	1.2
Not specified	209	..	209	..

.. Not applicable.
Note: *N* = 697.

The most commonly rated difficulty for both partners and children (as reported by partners) was missing the deployed member. For partners, the next most common difficulties were worrying about the deployed member's safety and the deployed member missing special occasions such as birthdays; these were closely followed by readjusting to life with the returned member and running the home alone during the deployment. For children, the next most common difficulties were the deployed member missing special occasions, readjusting to life with the deployed member, and worrying about the deployed member's safety.

Positive aspects of Timor-Leste deployment for families

Timor-Leste partners were asked to describe, in their own words, any benefits they or their children gained from their ADF member's Timor-Leste deployment. Forty-four per cent of partners provided a response indicating a benefit for them and 30 per cent provided a response indicating a benefit for their children.

Thematic analysis was performed on the responses. This involves coding text in order to identify themes. Coding is the application of descriptions to chunks of data. Two members of the research team themed the responses individually by hand and then compared themes. There was a high degree of concordance for the themes identified. The results show each theme and the total number of partner responses in each—see Table 6.22. (Note that not all partners responded to the two questions and those who did might have listed more than one benefit.)

Table 6.22 Benefits of deployment for partners and children as listed by Timor-Leste partners

Benefits of deployment	Partners (*n*)	Children (*n*)
Financial benefits	94	17
Closer relationships, e.g. with partner, children	38	20
Independence	36	10
Self-reliant/capable/learn to do new chores	27	..
Improved coping and resilience	18	9
Job satisfaction and happiness of deployed member	13	..
Personal strength	12	..
New people and experiences	12	5
Pride in the ADF member	9	14
Learning about other countries and cultures	9	26
Learning about military life	6	2
Confidence	5	3
Safer/happier while ADF member deployed	4	4
Communication	..	7
Additional responsibilities	..	6
More mature/self-sufficient/adaptable	..	6
Less strict parenting	..	3
Other	9	13
None/no benefits	31	7
No benefits because child too young	..	12

.. Not applicable.

The most tangible benefit of deployment was financial, with comments such as 'financial stability', 'we were able to save a deposit to buy our first house' and 'more money in the house for toys and Christmas'. Partners also said that relationships within the family became closer—'we enjoy an extraordinary

relationship now as a consequence', 'they enjoy a wonderful relationship with their father now too' and 'we appreciate each other so much more'. Among other cited benefits were the following:

- learning more about other countries and cultures—'an understanding of issues that affect other countries and where Australia fits in'
- independence—'forced to become more independent and capable'
- self-reliance—'found out we could actually do some of the handyman jobs he would always do. We were pretty happy with ourselves'
- improved coping skills—'improved coping mechanisms, calmness in the face of military life uncertainties'
- pride in the ADF member—'they knew that their dad and their friends' dads were helping children like them to rebuild their lives'
- seeing the job satisfaction of the ADF member—'there were no personal benefits for me but it was satisfying for me to see how much my husband gained from the experience and the feeling of him being able to contribute in some way'.

Discussion

This chapter looks at how deployment influenced the physical, mental and family health of partners and children. In particular, it looks at the impact on these health measures of the number of deployments experienced by the family, whether the ADF member was deployed at the time of the survey, and the particular experiences of Timor-Leste deployment for the partners and children of deployed ADF members.

Number of deployments

Contrary to the findings expected on the basis of the literature, the number of deployments experienced was not associated with negative outcomes in terms of the measured physical or mental health of partners. Neither was the number of deployments associated with any changes in the proportion of partners who had experienced abuse in their relationships.

The trend analysis showed, however, that family functioning was affected by an increasing number of deployments and that children's behavioural difficulties increased and prosocial behaviour decreased. Children who were part of the groups who were deployed four, five or more times were reported as having fewer prosocial behaviours, and those in the two, three, four and five or more deployment groups were reported as having statistically more difficult or problematic behaviours compared with children whose parent had never deployed. There were no statistically significant differences between the 'never deployed' and 'deployed once' groups.

As the number of deployments experienced by partners increased, the partners were statistically significantly more likely to rate the impact of military commitments on their relationship and children as negative. It is clear that more deployments influenced how partners felt the military affected their home life, even though this did not translate into a direct relationship between the number of deployments and measured health outcomes. Longitudinal research—rather than cross-sectional—would be better for exploring this effect.

The lack of a relationship between multiple deployments and the health of partners is a positive finding. Although there were negative consequences for children in terms of behaviour, the absolute number of children experiencing difficulties was not large (between five and 12 per cent). This might confirm previous findings relating to the resilience of military families (Andres & Moelker 2011; Chandra et al. 2008; Friedberg & Brelsford 2011). As reported, however, those who have left the military were difficult to contact and are under-represented in this research. The findings might thus indicate a 'healthy families' effect; that is, families that are able to cope with deployment are more likely to remain in the military and consequently to experience further deployment. Chapter 7 explores the particular risk and protective factors that set these resilient families apart.

What neither this chapter nor the preceding ones have been able to do is isolate the Timor-Leste experience from any of the other deployment experiences. Those partners categorised as having experienced one deployment have not all had the same deployment experience. Some might be in a relationship with an ADF member who deployed to Timor-Leste and others with an ADF member who deployed to Iraq or Afghanistan or any one of a number of other possibilities. Similarly, although some partners stated that they had not experienced a deployment with their ADF member, that does not necessarily mean their ADF member had never deployed. The ADF member might have deployed before they met their partner.

Current deployments and the effects on families

Previous research has found that partners of deployed military personnel can have elevated rates of mental health problems and psychiatric diagnoses (Gorman et al. 2011; Mansfield et al. 2010; O'Toole et al. 2010). In contrast, this present study found no statistically significant relationship between current deployment and the mental or physical health of partners. Partners of deployed ADF members did, however, report significantly less conflict, perhaps because there are fewer opportunities to argue and families try to reduce any arguments that are difficult to resolve at a distance. Additionally, they reported that the difficulties faced by their children impacted on their families to a greater extent, even though the behavioural difficulties and prosocial ratings appeared no different from those of children with a non-deployed parent. It might be expected that in the absence of one parent difficulties with children that might ordinarily be accepted can have a larger impact.

Although the quantitative findings suggest very few differences, it is worth bearing in mind some caveats in relation to these null findings. First, families of currently deployed ADF members might be 'downplaying' the difficulties they face in order to cope with the rest of the deployment process. Second, the measures of mental and physical health might not take account of factors concerning the families—for example, stress, depression, happiness, sleep or general satisfaction (Burton et al. 2009; Mansfield et al. 2010). As a consequence, partners might not be physically less well or suffering more mental health symptoms at a clinical level, but they might be experiencing other difficulties, such as increased stress. Finally, the number of partners currently experiencing a deployment was comparatively small.

Partners' experience of Timor-Leste deployment

The partners' experience of Timor-Leste deployment was the only deployment-related variable that had a statistically significant impact on the partners' health. Those who rated the Timor-Leste deployment more negatively reported worse physical and mental health and lower satisfaction with the quality of their relationship; that is, the more difficult the deployment was for the partner the worse the reported outcomes. This suggests that in this study it was the subjective experience of deployment—rather than the more objective measures (such as the number of deployments or whether the ADF member was currently deployed)—that had the greatest impact for partners.

The most frequently cited difficult aspects of deployment were associated with the absence of the deployed member—missing them, worrying about their safety, and not having them present on special occasions. It is difficult to fill the gap deployment leaves for families, but there are programs and strategies that can improve the experience of deployment for partners and children. The following chapter explores some of the risk and protective factors that might be associated with better health outcomes.

7 The impact of risk and protective factors on the health of family members

This chapter assesses risk and protective factors associated with the physical, mental and child health outcomes that are analysed in Chapters 4 and 5. In particular, it responds to research aim 2.

Risk factors are conditions or variables associated with a lower likelihood of positive outcomes and a higher likelihood of negative or socially undesirable outcomes. Protective factors have the reverse effect: they increase the likelihood of positive outcomes and diminish the likelihood of negative consequences as a result of exposure to risk (Jessor et al. 1998). The same factor can be either a risk or a protective factor. For example, having supportive friends might help partners cope with deployment, but being in a new location with no friends nearby might make things harder. The risk and protective factors considered in this chapter are coping, social support, access to and use of services such as the Defence Community Organisation, intimate partner violence, and relationship satisfaction.

Chapters 4 and 5 showed there were no statistically significant differences in health outcomes between Timor-Leste partners and comparison group partners across a wide variety of measures. The data for these families were therefore combined and analysed together. This increased the statistical power and the likelihood of detecting any statistically significant relationships.

Research aim 2

To identify any risk and protective factors associated with any health impacts.

Hypothesis

2. For the partners and children of ADF members, there will be associations between identified risk and protective factors (excluding deployment frequency) and health impacts.

Main findings

(Note that the associations reported here do not imply causation or direction.)

Family functioning

- Partners who reported non-balanced family functioning had statistically significantly worse mental health scores.
- Partners who reported high psychological distress were approximately three times more likely to report their family functioning as non-balanced.
- Partners who screened positive for Posttraumatic Stress Disorder were four times more likely to report their family functioning as non-balanced.
- Children in a family with non-balanced functioning were statistically significantly more likely to be in the at-risk range for any behavioural difficulties having an impact on their life.

Coping

- Partners who used high emotion-focused coping were statistically significantly more likely to report lower physical health.
- Partners who used high problem-focused coping were statistically significantly more likely to report lower physical health.
- Partners who used high emotion-focused coping had statistically significantly poorer mental health scores than those using low emotion-focused styles.
- Partners using high emotion-focused coping styles were statistically significantly more likely to report higher levels of psychological distress.
- Partners using high emotion-focused coping styles were statistically significantly more likely to screen positive for Posttraumatic Stress Disorder.

Quality of relationship

- A statistically significant association was found between partners' higher mental health scores and an improved perception of the quality of the relationship.
- There was a statistically significant association between partners scoring in the higher psychological distress category and reporting a reduction in the perceived quality of the relationship.
- There was a statistically significant association between partners screening positive for Posttraumatic Stress Disorder and a reduction in the perceived quality of the relationship.
- There was a statistically significant association between at-risk levels of the children's reported total difficulties and a reduction in the perceived quality of the relationship.
- There was a statistically significant association between partners reporting their child as having fewer prosocial behaviours and reporting less social support and more conflict in their relationship.
- There was a statistically significant association between at-risk levels of the impact of the child's reported behavioural difficulties and a reduction in the perceived quality of the relationship.

Social support

- Partners who reported high support (from either family or non-family) were likely to have statistically significantly better mental health scores than partners who had low support (either from family or non-family).
- Partners who reported high support from family were statistically significantly less likely to have high psychological distress.
- Partners who reported high support (from either family or non-family) were statistically significantly less likely to screen positive for Posttraumatic Stress Disorder.
- Partners who reported a negative experience of Timor-Leste deployment were more likely to report a lower level of social support than those who had a positive experience of Timor-Leste deployment. This finding was most pronounced in connection with family support.
- Children from families with medium and high family support were statistically significantly less likely to have behavioural difficulties compared with children from families who reported low family support.
- Children from families with medium and high support from family or high support from non-family groups were statistically significantly more likely to display prosocial behaviour.

Intimate partner violence

- There was a statistically significant association between partners' physical health and positive screens for intimate partner violence.
- There was a statistically significant association between partners reporting higher (better) mental health scores and reporting less intimate partner violence in their relationship.
- There was a statistically significant association between partners screening positive for Posttraumatic Stress Disorder and reporting more intimate partner violence in their relationship.
- Children from families where the partner screened positive for intimate partner violence were associated with reportedly displaying fewer prosocial behaviours.

Introduction

As noted in previous chapters, the majority of research on military families has been done in the United States. How these findings relate or might be generalised to Australian military families is not clear.

Military families are often described as healthy and resilient, but they are regarded as a special population because they face unique stressors (Lincoln et al. 2008; Riviere & Merrill 2011; Sheppard et al. 2010). Although relatively rare in the civilian context, stressors affecting military families include relocation, separation, deployment, and the injury or death of the serving member (Dimiceli et al. 2010; Riviere & Merrill 2011; Warner et al. 2009). Daily stressors often increase during deployment as families try to cope without the emotional and practical support of the serving member. Individuals and families react to stress in different ways, and many stressors can have both positive and negative impacts on families (Dimiceli et al. 2010; Riviere & Merrill 2011).

Resilience is about responding and adapting to crises and adversity and recovering and growing from these experiences (Walsh 2003). Individual strengths, family strengths and community supports all play a role in resilient families (McCubbin & McCubbin 1988).

Coping

Coping can be defined as 'the thoughts and behaviours used to manage the internal and external demands of situations that are appraised as stressful' (Folkman et al. 2004, p. 745). Effective coping reflects a good fit between the stressor and the behavioural strategy (Dimiceli et al. 2010; Folkman et al. 2004). Because many stressors, such as deployment, unfold over time rather than being single events, different strategies can be more effective at different times (Dimiceli et al. 2010; Folkman et al. 2004; Walsh 2003).

One way of describing coping strategies is to categorise them as problem focused (active strategies that directly react to or alter the situation) and emotion focused (reducing emotional distress) (Dimiceli et al. 2010). Emotion-focused strategies have been consistently associated with negative outcomes such as psychological distress and maladjustment (Austenfeld & Stanton 2004). Problem-focused strategies are used more frequently and are more effective than emotion-focused strategies for reducing distress (Dimiceli et al. 2010). Penley et al. (2002) conducted a meta-analysis of coping strategies, finding that overall health was positively associated with problem-focused coping strategies and negatively associated with emotion-focused strategies.

Problem- and emotion-focused strategies can be adaptive in the short-term (Austenfeld & Stanton 2004; Carver et al. 1989; Dimiceli et al. 2010). Both types of coping are usually activated to deal with stressors. For example, one of the first coping tasks is to reduce negative emotions that might be a source of stress in themselves and that might interfere with more problem-focused coping strategies (Folkman et al. 2004). Problem-focused strategies are considered better for controllable stressors, while emotion-focused strategies are better for stressors over which the person has very little control (Dimiceli et al. 2010).

In a large-scale study of coping in military families, Figley (1993) observed, 'Some [families] appear to become even more hardy, resilient and functional. Yet other family members, as a result of the Persian Gulf War related stressors, seem to employ coping strategies that do more harm than good and become additional sources of stress' (p. 61).

Social support

Tangible social support is another protective factor for military partners and can buffer against the effects of stress (Copeland & Norell 2002; Mmari et al. 2010; Spera 2009). Social support has been directly related to lower stress (Allen et al. 2011) and reduced psychological distress (Andres & Moelker 2011).

Deployment causes stress on the family system, particularly if the non-deployed partner does not have a strong support network (Mmari et al. 2010). Informal sources of support—partners, extended family, parents, siblings, other family members, friends inside and outside the military community, religious organisations and neighbours—are most frequently used (Joseph & Afifi 2010; RAND 2008). Military life can reduce the social support available to families: 60 per cent of participants in an Australian study reported it was difficult or very difficult to establish support networks after relocation (Atkins 2009).

There are conflicting findings in relation to the value of connections between military families. Allen et al. (2011) found no association between connection with other Army families and stress levels, while Mmari et al. (2010) argued that social connections with other military families are a protective factor. In Australia, Reservists are less likely than full-time military personnel to have links with military support services and other military families; for example, only 50 per cent of Reserve families in one study were aware of other military

families (Orme & Kehoe 2011). It is unclear what sources of social and organisational support families used during ADF members' deployment to Timor-Leste.

Service use and barriers to care

Formal organisational support services are used less frequently than social supports (Joseph & Afifi 2010). The Directorate of Strategic Personnel Planning and Research at the Department of Defence (Atkins 2009) surveyed Australian military families and found that about half were aware of Defence services such as the National Welfare Coordination Centre and Defence Families of Australia but fewer than eight per cent had used these services. A much larger proportion (96 per cent) were aware of the Defence Community Organisation, although 43 per cent of people were unsure of its role.

A study of US Reserve and National Guard families produced a similar pattern of results: formal military support services were mentioned by less than half the families and used by a very small percentage (RAND 2008). Additionally, there is some evidence that the majority of partners who seek help prefer to do so from civilian rather than military sources (Gorman et al. 2011).

Not everyone who needs help will seek it. While Warner et al. (2009) found that almost 90 per cent of partners would be willing to seek treatment if necessary, Gorman et al. (2011) found that 39 per cent of partners who screened positively for mental health problems had not sought any help.

Barriers to seeking help can be related to availability, accessibility and acceptability (American Psychological Association 2007; Eaton et al. 2008; Gorman et al. 2011; O'Toole et al. 2010; Warner et al. 2009). The following are potential barriers:

- not knowing where to get help
- difficulty obtaining time off work or away from family
- cost
- being viewed as weak
- stigma associated with mental health and treatment
- practical limitations such as childcare or transport
- a service person's ill-health affecting their partner's ability to seek help
- intimate partner violence and relationship satisfaction.

Intimate partner violence

Intimate partner violence, relationship satisfaction and family functioning, discussed in Chapter 4, can play an important part in the health and wellbeing of military families.

Physical and psychological aggression from a male veteran towards a female partner has been significantly associated with distress in females and internalising and externalising behaviour problems in children (Clarke et al. 2007). Similarly, aggression from female veterans towards male partners, or from both partners, is associated with child behaviour problems (Watkins et al. 2008).

Risk and protective factors for children, young people and families

Among the risk factors exacerbating the negative effects of deployment on military youth and families are a history of family problems, younger families (a younger couple), families with young children, less educated families, foreign-born spouses, those with lower ranks or pay grades, Reserve families, families with children who have disabilities, families experiencing pregnancy, single-parent families, and families with mothers in the military (American Psychological Association 2007). Families that tend to function most effectively are active, optimistic, self-reliant and flexible (Jensen et al. 1996; Wiens & Boss 2006). Additionally, families that have social support, previous relocation experience, positive attitudes towards relocation and active coping styles tend to do better when they move (Feldman & Thompson 1993; Frame & Shehan 1994).

As discussed, risk and protective factors can exacerbate or ameliorate effects associated with military life for partners and children. This study is cross-sectional, so it is not possible to determine the direction of the relationship between a particular risk or protective factor and a measure of health.

This chapter evaluates the associations between risk and protective factors and the measures of health already used in this report. It also looks at sources of support used by the partners of ADF members who deployed to Timor-Leste during the time of that deployment. It begins with the relationship between family health and partners' mental and physical health.

Method

Measures

Analyses for this chapter were conducted using the following measures, which are described in Chapter 3:

- physical health
  - Short Form-12 (SF-12)

- mental health
  - psychological distress—Kessler-10 (K10)
  - Posttraumatic Stress Disorder—PTSD Checklist – Civilian Version (PCL-C)
- child health
  - child emotions and behaviours—Strengths and Difficulties Questionnaire (SDQ).

Risk and protective factor measures are:

- family functioning—Family Adaptability and Cohesion Evaluation Scale (FACES-IV)
- coping—Brief COPE
- social support—Duke Social Support Stress Scale (DUSOCS)
- support during Timor-Leste deployment—questions about Timor-Leste deployment
- service use—questions about service use
- barriers to care—questions about barriers to care
- intimate partner violence—Woman Abuse Screening Tool (WAST)
- relationship satisfaction—Quality of Relationships Inventory (QRI).

Results

Family functioning

Family functioning was assessed primarily using FACES-IV, which measures the level of cohesion and flexibility within families. Families that are balanced are more likely to function well across the life cycle and adapt well to crisis and change. Non-balanced families are at risk of problematic functioning.

Family functioning and partners' physical health

No statistically significant relationship was found between family functioning and partners' physical health (adjusted mean difference = –0.21 (CI –2.35, 1.93) $p = 0.85$) as measured by the SF-12.

Family functioning and partners' mental health

Table 7.1 shows the results of examining the association between partners' mental health, as measured by the SF-12 and FACES-IV.

Table 7.1 Association between partners' mental health and family functioning as measured by the SF-12 and FACES-IV

SF-12 (MCS score) family type	*n*	Crude mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
FACES-IV balanced	931	48.15		Baseline		Baseline	
FACES-IV non-balanced	79	44.42	–3.73	(–6.33, –1.14)	–3.35	(–5.94, –0.76)	0.01

a. Crude mean difference of partners' SF-12 MCS scores by family type.
b. Adjusted mean difference of partners' SF-12 MCS scores by number of deployments while together, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,010.

A statistically significant association was found between mental health and family functioning. Partners with non-balanced family functioning had statistically significantly worse mental health scores than those with balanced functioning, even after adjusting for factors such as the number of deployments they had experienced while being with the ADF member.

Table 7.2 Association between partners' psychological distress and family functioning as measured by the K10 and FACES-IV

Family type *N* = 1,037	K10 <30 (*n* = 988, 95.3%)		K10 ≥30 (*n* = 49, 4.7%)		Adjusted OR	(95% CI)[a,b]	*p*-value
	n	%	*n*	%			
Balanced	918	(95.1)	47	(4.9)	1.00	Baseline	
Non-balanced	71	(85.5)	12	(14.5)	3.81	(1.89, 8.50)	<0.001

a. K10 ≥30 vs K10 <30.
b. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,040.

Family functioning was significantly associated with psychological distress (see Table 7.2). While the number of partners in the non-balanced group was small, those reporting high psychological distress (K10 >30) were about three times more likely to report a non-balanced family.

Table 7.3 Association between partners' PTSD symptoms and family functioning as measured by the PCL-C and FACES-IV

Family type *N* = 1,037	PCL-C <50 (*n* = 988, 95.3%)		PCL-C ≥50 (*n* = 49, 4.7%)		Adjusted OR	(95% CI)[a,b]	*p*-value
	n	%	*n*	%			
Balanced	916	(96.0)	38	(4.00)	1.00	Baseline	
Non-balanced	72	(86.7)	11	(13.3)	4.01	(1.89, 8.50)	<.001

a. PCL-C ≥50 vs PCL-C <50.
b. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 1,037.

There was a strong and statistically significant association between symptoms of Posttraumatic Stress Disorder and family functioning (see Table 7.3): partners

who scored 50 or higher on the PCL-C (that is, screened positive) were four times more likely to report their family functioning as non-balanced.

Family functioning and child health

After adjusting for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service, no statistically significant associations were found between the total difficulties or the prosocial subscales of the SDQ and family functioning (total difficulties OR 1.27 = (0.79, 2.04); prosocial OR = 0.54 (0.17, 1.70)).

Children in a non-balanced family were, however, statistically significantly more likely to be in the at-risk range on the impact scale. The impact scale is a measure supplemental to the SDQ and measures the impact of any difficulties the child is having on their life and their family.

Table 7.4 Association between child emotions and behaviours (impact supplement) and family functioning as measured by the SDQ and FACES-IV

FACES-IV family type	Normal impact score (*n* = 802, 83.7%)		Abnormal impact score (*n* = 156, 16.3%)				
***N* = 958**	***n***	**%**	***n***	**%**	**OR**	**(95% CI)**	***p*-value**
Balanced	738	84.4	137	15.5	1.00	Baseline	
Non-balanced	64	76.2	20	23.8	1.60	(1.04,2.46)[a,b]	0.03

a. Abnormal total impact (score ≥2) vs normal total impact (score of 0 or 1) by FACES-IV family type.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
Note: *N* = 958

For partners, non-balanced family functioning was associated with poorer mental health, higher psychological distress and screening positively for Posttraumatic Stress Disorder. This suggests that non-balanced family functioning might be a risk factor for mental health and that balanced family functioning might be protective. Alternatively, poorer mental health might be a risk factor for less balanced family functioning.

Non-balanced functioning was also associated with an increased likelihood that children would be reported in the at-risk range for any difficulties they faced that affected various aspects of their school and family life.

Coping

Coping was measured by Brief COPE. Scores on each subscale range from 2 to 8, low scores indicating the strategy is used 'none of the time' and high scores indicating it is used 'a lot'. Partners were asked to consider the problems they might have dealt with as the partner of an ADF member and how frequently they used each type of coping strategy (but not how effective it was).

Table 7.5 Coping strategies used by partners

Strategy type	Coping strategy	Mean (SD) (range 2–8)
Problem focused	Acceptance	5.4 (1.9)
Emotion focused	Self-distraction	4.8 (1.8)
Problem focused	Positive reframing	4.4 (1.7)
Problem focused	Active coping	4.4 (1.8)
Problem focused	Planning	3.8 (1.8)
Problem focused	Using emotional support	3.7 (1.6)
Problem focused	Using instrumental support	3.4 (1.5)
Emotion focused	Humour	3.2 (1.5)
Emotion focused	Venting	3.2 (1.3)
Problem focused	Religion	2.7 (1.4)
Emotion focused	Self-blame	2.7 (1.3)
Emotion focused	Behaviour disengagement	2.5 (1.0)
Emotion focused	Substance use	2.4 (1.1)
Emotion focused	Denial	2.2 (0.8)

Partners relied on a variety of coping strategies. The most commonly used strategy was acceptance; this was closely followed by self-distraction, positive reframing and active coping. Denial was reportedly used least frequently.

For statistical modelling, individual coping strategies were categorised as either problem focused or emotion focused, based on the method used by Dimiceli et al. (2010). Overall, partners used more problem-focused (Mean = 27.9, SD = 8.4) than emotion-focused strategies (Mean = 21.0, SD = 5.5).

Most people use both types of coping strategies in response to stressors. Partners were divided into categories based on their coping style. 'Coping style' was defined by whether partners used high or low levels of emotion- or problem-focused strategies.

Coping and partners' physical health

Table 7.6 Association between partners' emotion- and problem-focused coping strategies and physical health as measured by the SF-12 PCS and Brief COPE

	PCS score (SF-12)			
Coping style	**Mean (SD)**	**Unadjusted difference**	**Adjusted difference[a]**	***p*-value**
Low emotion and low problem focus[b]	52.8 (7.7)	(Baseline)	(Baseline)	
Low emotion and high problem focus[b]	51.4 (10.1)	–1.4 (–3.3, 0.5)	–2.0 (–3.9, –0.1)	0.04
High emotion and low problem focus[b]	50.5 (10.3)	–2.3 (–4.1, –0.5)	–2.5 (–4.3, –0.8)	<0.01
High emotion and high problem focus[b]	51.9 (10.4)	–0.9 (–2.2, 0.4)	–1.4 (–2.7, –0.08)	0.08

a. Adjusted for all other terms in the model and partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
b. Categories created based on scoring above and below the median of the emotion-focused and problem-focused coping scales respectively.
Note: *N* = 1,068.

There were statistically significant differences between the mean physical health scores of partners using different coping styles. A high focus on either problem- or emotion-focused coping was related to reported lower levels of health. In contrast, a high focus on both emotion- and problem-focused coping styles was not associated with statistically significantly better health compared with the baseline.

Coping and partners' mental health

Table 7.7 Association between partners' mental health and emotion- and problem-focused coping strategies as measured by the SF-12 MCS and Brief COPE

	MCS score (SF-12)			
Coping style	**Mean (SD)**	**Unadjusted difference**	**Adjusted difference[a]**	***p*-value**
Low emotion and low problem focus[b]	51.8 (9.1)	Baseline	Baseline	
Low emotion and high problem focus[b]	50.6 (9.0)	–1.2 (–3.3, 0.9)	–0.8 (–3.6, 2.1)	.60
High emotion and low problem focus[b]	42.3 (12.2)	–9.5 (–11.5, –7.5)	–8.8 (–10.9, –6.6)	<.001
High emotion and high problem focus[b]	43.7 (11.8)	–8.1 (–9.6, –6.7)	–7.5 (–10.0, –4.9)	<.001

a. Adjusted for all other terms in the model and partners' age (18–29, 30–39, 40–49, 50+), sex, and education level, and ADF members' rank and Service.
b. Categories created based on scoring above and below the median of the emotion-focused and problem-focused coping scales respectively.
Note: *N* = 1,068.

Partners who used high emotion-focused coping strategies had statistically significantly poorer mental health scores than those using low emotion-focused strategies. This did not change depending on their use of problem-focused strategies.

Table 7.8 Association between partners' psychological distress and emotion- and problem-focused coping strategies as measured by the K10 and Brief COPE

	K10 <30		K10 ≥30				
Coping style	***n***	**%**	***n***	**%**	**OR**	**(95% CI)[a]**	***p*-value**
Low emotion and low problem focus[b]	437	97.3	12	2.7	1	Baseline	
Low emotion and high problem focus[b]	120	99.2	1	0.8	0.32	(0.04, 2.54)	.28
High emotion and low problem focus[b]	122	85.3	21	14.7	5.58	(2.59, 11.98)	<.001
High emotion and high problem focus[b]	343	92.4	28	7.6	2.98	(1.47, 6.05)	.003

a. Adjusted for all other terms in the model and partners' age (18–29, 30–39, 40–49, 50+) sex and education level, and ADF members' rank and Service.
b. Categories created based on scoring above and below the median of the emotion-focused and problem-focused coping scales respectively.
Note: *N* = 1,039.

Partners using high emotion-focused coping styles were statistically significantly more likely to score 30 or above on the K10—that is, to report higher levels of psychological distress. The relationship between high problem-focused coping strategies and psychological distress was less clear: high problem-focused coping in conjunction with low-emotion focused coping resulted in outcomes similar to the baseline measure. However, partners who used high problem-focused coping and high emotion-focused coping were statistically significantly more likely to score 30 or above on the K10.

Table 7.9 Association between partners' PTSD symptoms and emotion- and problem-focused coping strategies as measured by the PCL-C and Brief COPE

	PCL-C <50		PCL-C ≥50				
Coping style	***n***	**%**	***n***	**%**	**OR**	**95% CI[a]**	***p*-value**
Low emotion and low problem focus[b]	438	99.3	3	0.7	1	Baseline	
Low emotion and high problem focus[b]	112	98.2	2	1.8	2.81	(0.46, 17.29)	.27
High emotion and low problem focus[b]	121	86.4	19	13.6	20.59	(5.87, 72.25)	<.001
High emotion and high problem focus[b]	343	93.5	24	6.5	10.97	(3.23, 37.27)	<.001

a. Adjusted for all other terms in the model and partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
b. Categories created based on scoring above and below the median of the emotion-focused and problem-focused coping scales respectively.
Note: *N* = 1,039.

Consistent with the preceding tables relating to mental health and coping, partners using high emotion-focused coping styles were statistically significantly more likely to screen positive for Posttraumatic Stress Disorder (scoring 50 or above on the PCL-C).

These findings are consistent with either of the following interpretations: poorer mental health is a risk factor for greater use of emotion-focused coping strategies or such strategies are a risk factor for poorer mental health.

Problem-focused coping would seem to be a protective factor for mental health but not in combination with high levels of emotion-focused coping.

Summary: coping

Overall, poorer outcomes on the mental health composite scale of the SF-12, the K10 and the PCL-C were found for partners with high emotion-focused coping styles. Poorer physical health outcomes were associated with high emotion-focused coping and also with the combination of high problem-focused and low emotion-focused coping.

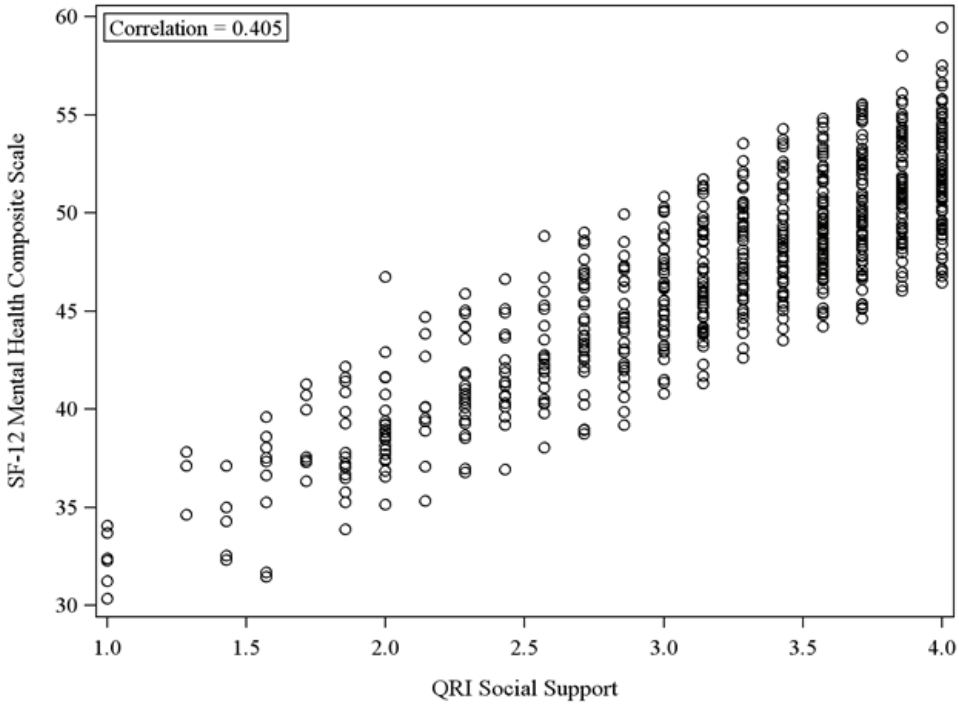
Quality of relationships

The QRI measures perceptions of social support in the relationship, the extent to which the relationship is a source of conflict and ambivalence, and how positive, secure and important the person's relationship is with their partner (referred to as 'depth'). Scores range from 1 to 4. Higher scores on the social support and depth scales represent more positive outcomes. Higher scores on the conflict scale suggest more conflict.

Quality of relationships and partners' physical health

The relationships between physical health and the three QRI subscales (social support, depth and conflict) were assessed using a model that accounted for partners' age, sex and education level and ADF members' rank and Service. The model was statistically significant, although the correlations in each case were small (r = 0.20, 0.20 and 0.21 for social support, depth and conflict respectively). Data not shown.

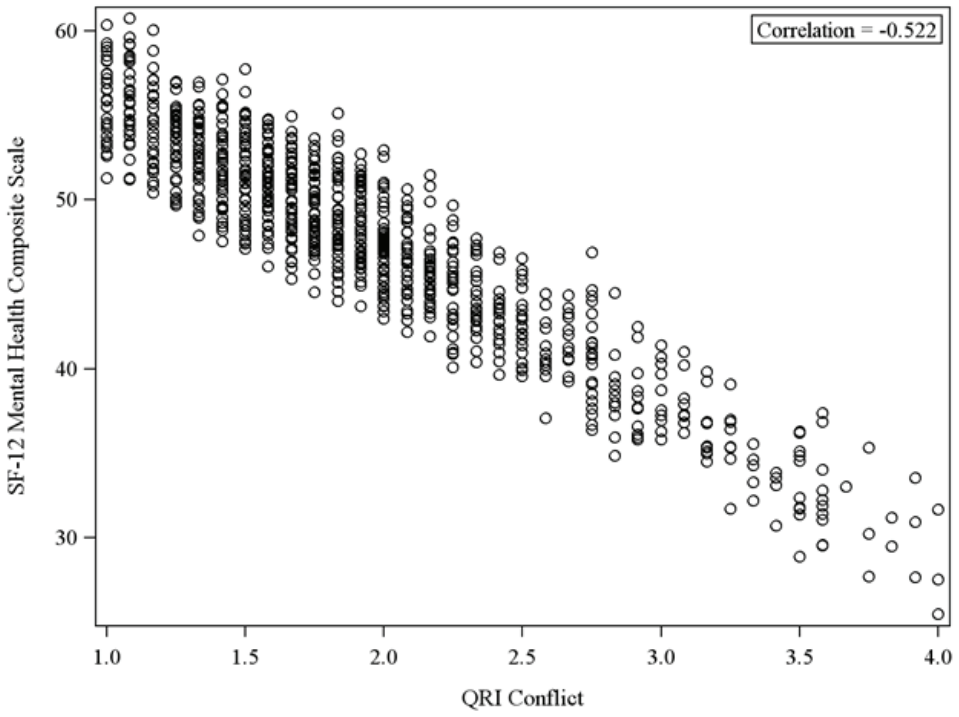
QRI and partners' mental health



Notes: *N* = 1,134. Adjusted parameter estimates of partners' SF-12 MCS scores, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
All items were rated on a 4-point Likert scale (1—'not at all'; 4—'very much'). Subscale scores range from 1 to 4.

Figure 7.1 Association between partners' adjusted SF-12 MCS scores and QRI social support scores

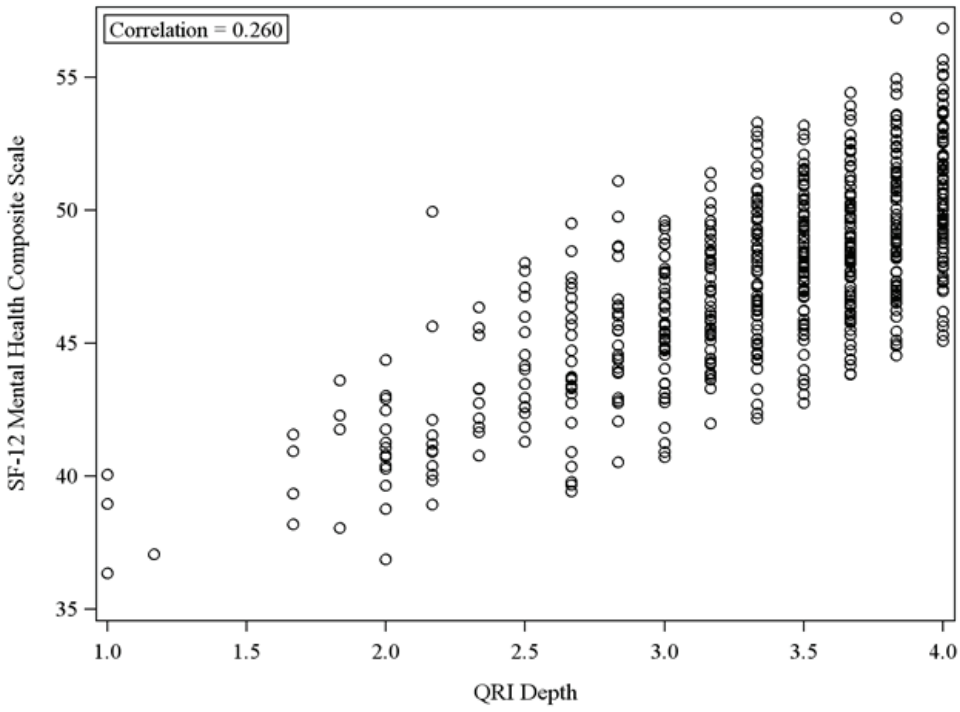
Figure 7.1 shows a strong and positive relationship between increasing adjusted SF-12 mental health scores and increasing perceptions of social support. The model was statistically significant and the correlation moderate (r = 0.41).



Notes: *N* = 1,090. Adjusted parameter estimates of partners' SF-12 Mental Component Scores, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
All items were rated on a 4-point Likert scale (1—'not at all'; 4—'very much'). Subscale scores range from 1 to 4.

Figure 7.2 Association between partners' adjusted SF-12 MCS scores and QRI conflict scores

Figure 7.2 shows the reverse relationship. Better mental health as measured by the SF-12 mental health composite scale was negatively correlated with conflict in the partners' relationships. The model was statistically significant after accounting for partners' age, sex and education level and ADF members' rank and Service. The correlation was moderate (r = –0.52).



Notes: *N* = 1,117. Adjusted parameter estimates of partners' SF-12 MCS scores, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
All items were rated on a 4-point Likert scale (1—'not at all'; 4—'very much'). Subscale scores range from 1 to 4.

Figure 7.3 Association between partners' adjusted SF-12 MCS scores and QRI depth scores

Like Figure 7.1, Figure 7.3 shows a positive relationship between increasing adjusted SF-12 mental health scores and increasing perceptions of relationship depth. The model was statistically significant and the correlation small (r = 0.26).

Table 7.10 Association between psychological distress and partners' quality of relationship as measured by the K10 and QRI

Measure	*n*	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
QRI social support (*N* = 1,182)							
K10 < 30	1,115	3.44		Baseline		Baseline	
K10 ≥ 30	67	2.77	–0.68	(–0.82, –0.53)	–0.69	(–0.84, –0.54)	<0.001
QRI conflict (*N* = 1,131)							
K10 < 30	1,067	1.81		Baseline		Baseline	
K10 ≥ 30	64	2.52	0.71	(0.56, 0.85)	0.69	(0.55, 0.84)	<0.001
QRI depth (*N* = 1,160)							
K10 < 30	1,096	3.54		Baseline		Baseline	
K10 ≥ 30	64	3.37	–0.17	(–0.28, –0.07)	-0.16	(–0.27, –0.05)	<0.01

a. High psychological distress (K10 ≥30) vs low to medium psychological distress (K10 <30).
b. Adjusted for partners' age, sex and education level, and ADF members' rank and Service.

Across all three scales there was a statistically significant relationship between partners scoring in the higher psychological distress category and reporting less social support, fewer positive feelings, and lower sense of importance (depth), and more conflict in their relationship. Overall, there was a relationship between increased psychological distress and a reduction in the perceived quality of the relationship.

Table 7.11 Association between symptoms of PTSD and partners' quality of relationship as measured by the PCL-C and QRI

Measure	*n*	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
QRI social support (*N* = 1,158)							
PCL-C < 50	1,103	3.44		Baseline		Baseline	
PCL-C ≥ 50	55	2.81	–0.63	(–0.79, –0.46)	–0.62	(–0.78, –0.45)	<0.001
QRI conflict (*N* = 1,112)							
PCL-C < 50	1,057	1.81		Baseline		Baseline	
PCL-C ≥ 50	55	2.59	0.78	(0.62, 0.93)	0.77	(0.61, 0.92)	<0.001
QRI depth (*N* = 1,160)							
PCL-C < 50	1,085	3.55		Baseline		Baseline	
PCL-C ≥ 50	51	3.38	–0.17	(–0.29, –0.05)	–0.18	(–0.30, –0.06)	<0.01

a. Positive screen for PTSD (PCL-C ≥50) vs negative screen (PCL-C <50).
b. Adjusted for partners' age, sex and education level, and ADF members' rank and Service.

The same pattern of results was evident when looking at the relationship between scores on the PCL-C and the perceived quality of the partners' relationships. Across all three measures, there was a statistically significant relationship between partners scoring 50 or above on the PCL-C and reporting less social support, fewer positive feelings, and lower sense of importance (depth) and more conflict in their relationship. Overall, there was a statistically

significant relationship between a positive screen for Posttraumatic Stress Disorder and a reduction in the perceived quality of the relationship.

QRI and child emotions and behaviour

Table 7.12 Association between child emotions and behaviour and partners' quality of relationship as measured by the SDQ (total difficulties scale) and QRI

Measure	*n*	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
QRI social support (*N* = 1,028)							
Normal total difficulties	894	3. 39		Baseline		Baseline	
Abnormal total difficulties	134	2.95	–0.44	(–0.60, –0.28)	–0.42	(–0.58, –0.26)	<0.001
QRI conflict (*N* = 992)							
Normal total difficulties	866	1.86		Baseline		Baseline	
Abnormal total difficulties	126	2.33	0.47	(0.32, 0.62)	0.46	(0.32, 0.61)	<0.001
QRI depth (*N* = 1,022)							
Normal total difficulties	891	3.47		Baseline		Baseline	
Abnormal total difficulties	131	3.22	–0.25	(–0.36, –0.13)	–0.23	(–0.34, –0.11)	<0.001

a. Crude mean difference of partners' QRI subscale score by SDQ total difficulties category.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.

Consistent with previous results, across all three measures there was a statistically significant relationship between partners reporting their child as having more difficulties and reporting less social support, fewer positive feelings and lower sense of importance (depth), and more conflict in their relationship. Overall, there was a relationship between abnormal (high or at-risk) levels of child difficulties and a reduction in the perceived quality of the relationship.

Table 7.13 Association between child emotions and behaviour and partners' quality of relationship as measured by the SDQ (prosocial scale) and QRI

Measure	*n*	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
QRI social support (*N* = 1,062)							
Normal prosocial behaviour	998	3.35		Baseline		Baseline	
Abnormal prosocial behaviour	64	3.02	–0.33	(–0.54, –0.11)	–0.30	(–0.51, –0.09)	<0.01
QRI conflict (*N* = 1,025)							
Normal prosocial behaviour	962	1.91		Baseline		Baseline	
Abnormal prosocial behaviour	63	2.19	0.28	(0.08, 0.47)	0.26	(0.07, 0.45)	<0.01
QRI depth (*N* = 1,056)							
Normal prosocial behaviour	993	3.45		Baseline		Baseline	
Abnormal prosocial behaviour	63	3.28	–0.17	(–0.33, 0.00)	–0.14	(–0.31, 0.02)	0.09

a. Crude mean difference of partners' QRI subscale score by SDQ prosocial behaviour category.
b. Adjusted for children's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.

Similarly, there was a statistically significant relationship between partners reporting their child as having fewer prosocial behaviours and reporting less social support and more conflict in their relationship. The relationship between abnormal (low or at-risk) prosocial behaviour and relationship depth was not statistically significant.

Table 7.14 Association between child emotions and behaviour and partners' quality of relationship as measured by the SDQ (impact scale) and QRI

Measure	*n*	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
QRI social support (*N* = 1,003)							
Normal reported impact	841	3.39		Baseline		Baseline	
Abnormal reported impact	162	3.05	–0.34	(–0.49, –0.20)	–0.32	(–0.46, –0.18)	<0.0001
QRI conflict (*N* = 970)							
Normal reported impact	815	1.86		Baseline		Baseline	
Abnormal reported impact	155	2.24	0.38	(0.25, 0.51)	0.38	(0.24, 0.51)	<0.0001
QRI depth (*N* = 997)							
Normal reported impact	839	3.47		Baseline		Baseline	
Abnormal reported impact	158	3.29	–0.18	(–0.29, –0.08)	–0.16	(–0.26, –0.05)	<0.001

a. Crude mean difference of partners' QRI subscale score by SDQ total difficulties category.
b. Adjusted for child's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.

Similarly, there was a statistically significant relationship between partners reporting their child's difficulties having an impact on the child's life and reporting less social support, more conflict and greater depth in their relationship.

Summary: quality of relationships

High social support and depth in the relationship and low levels of conflict between the partner and their ADF member were associated with better mental health scores, less risk of elevated psychological distress, and less likelihood of a positive screen for Posttraumatic Stress Disorder.

The same pattern of results was observed for children: high social support and depth in the parental relationship were associated with lower total difficulties and more prosocial (positive helping) behaviours for children and lower impacts on the family. High levels of parental conflict increased the risk of difficulties, reduced levels of prosocial behaviours, and heightened the impact this had on children's behaviours. In general terms, the higher the reported quality of the partners' relationship the better the reported outcomes for the children. Of course, since this is a cross-sectional study, it is also possible that children with fewer emotional and behavioural difficulties had parents who reported higher quality relationships.

Social support

Using the Duke Social Support and Stress Scale (DUSOCS), the study asked partners of ADF members about the amount of social support they currently received. On this scale, partners rated how supportive family members (wife, husband or significant other, children or grandchildren, parents or grandparents, siblings, blood relatives or relatives by marriage) and non-family supports (neighbours, co-workers, religious community or other friends) were.

Additionally, Timor-Leste partners were asked to nominate, from a list, the sources of support they used during their ADF member's deployment to Timor-Leste. If they nominated a particular form of support, they were also asked to rate its helpfulness.

Social support and partners' physical health

Table 7.15 Association between physical health and social support as measured by the SF-12 and DUSOCS

Social support	Mean (SD)	Difference in means	95% CI	Adjusted difference in means[a]	95% CI	*p*-value
Family support[b]						
Low support (0–50)	51.2 (10.7)		Baseline		Baseline	
Medium support (57–71)	52.4 (8.3)	1.1	(–0.2, 2.3)	1.0	(–0.2, 2.3)	0.10
High support (79–100)	52.7 (8.6)	1.4	(–0.1, 2.8)	1.5	(0.03, 2.9)	0.05
Non-family support[b]						
Low support (0–30)	51.9 (9.3)		Baseline		Baseline	
Medium support (40)	52.9 (9.1)	1.0	(–0.5, 2.5)	1.0	(–0.5, 2.4)	0.19
High support (50–100)	51.6 (9.8)	–0.2	(–1.5, 1.0)	–0.4	(–1.6, 0.9)	0.57

a. Adjusted for all other terms in the model and age (18–29, 30–39, 40–49, 50+), rank, sex, Service and educational status.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,113.

There were no substantial or consistent differences in physical health scores according to the level of support received, either family or non-family.

Social support and partners' mental health

Table 7.16 Association between mental health and social support as measured by the SF-12 and DUSOCS

Social support	Mean (SD)	Difference in means	95% CI	Adjusted difference in means[a]	95% CI	*p*-value
Family support[b]						
Low support (0–50)	44.5 (12.7)		Baseline		Baseline	
Medium support (57–71)	49.1 (10.0)	4.6	(3.1, 6.1)	4.6	(3.2, 6.1)	<0.001
High support (79–100)	51.6 (9.0)	7.1	(5.5, 8.8)	7.1	(5.5, 8.8)	<0.001
Non-family support[b]						
Low support (0–30)	46.4 (12.1)		Baseline		Baseline	
Medium support (40)	48.3 (10.9)	1.9	(0.1, 3.6)	1.9	(0.3, 3.6)	0.02
High support (50–100)	49.8 (10.0)	3.4	(1.9, 4.9)	3.7	(2.2, 5.2)	<0.001

a. Adjusted for all other terms in the model and age (18–29, 30–39, 40–49, 50+), rank, sex, Service and educational status.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,113.

Partners who reported high family support were likely to have statistically significantly better mental health scores than partners who had low family support. Similarly, partners with high non-family support were statistically significantly more likely to have better mental health as measured by the SF-12 than partners with low non-family support.

Table 7.17 Association between psychological distress and social support as measured by the K10 and DUSOCS

	K10 <30		K10 ≥30			
Social support	***n***	**%**	***n***	**%**	**OR[a] 95% CI**	***p*-value**
Family support[b]						
Low support (0–50)	420	90.5	44	9.5	1 Baseline	
Medium support (57–71)	412	96.5	15	3.5	0.34 (0.18, 0.63)	<0.001
High support (79–100)	26	97.7	6	2.3	0.17 (0.07, 0.45)	<0.001
Non-family support[b]						
Low support (0–30)	519	93.3	37	6.7	1 Baseline	
Medium support (40)	223	94.1	14	5.9	0.88 (0.45, 1.71)	0.70
High support (50–100)	348	96.1	14	3.9	0.56 (0.29, 1.07)	0.08

a. Adjusted for all other terms in the model and age (18–29, 30–39, 40–49, 50+), rank, sex, Service and educational status.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,126.

Family support was associated with a lower risk of scoring in the high psychological distress category. Partners were also less likely to have high psychological distress when non-family support was high, although this was not statistically significant.

Table 7.18 Association between PTSD symptoms and social support as measured by the PCL-C and DUSOCS

	PCL-C <50		PCL-C ≥50			
Social support	***n***	**%**	***n***	**%**	**OR[a] 95% CI**	***p*-value**
Family support[b]						
Low support (0–50)	420	91.1	41	8.9	1 Baseline	
Medium support (57–71)	414	97.4	11	2.6	0.27 (0.14, 0.55)	<0.001
High support (79–100)	262	98.9	3	1.1	0.11 (0.03, 0.36)	<0.001
Non-family support[b]						
Low support (0–30)	518	93.5	36	6.5	1 Baseline	
Medium support (40)	227	95.8	10	4.2	0.65 (0.31, 1.37)	0.25
High support (50–100)	349	97.5	9	2.5	0.38 (0.17, 0.82)	0.01

a. Adjusted for all other terms in the model and age (18–29, 30–39, 40–49, 50+), rank, sex, Service and educational status.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,120.

Both medium and high levels of family support and high levels of non-family support were associated with a lower risk of the partners screening positively on the PCL-C, suggesting that social support might be a protective factor.

Social support and Timor-Leste partners' experience of deployment

Partners' perception of Timor-Leste deployment and its effects on their physical and mental health is discussed in Chapter 6. The results show that partners who rated their experience of the Timor-Leste deployment as negative had

statistically significantly worse physical and mental health and reported poorer relationship quality compared with partners who rated their experience of the deployment as neutral or positive. The foregoing analysis suggests that social support was beneficial for partners' mental health.

Table 7.19 Association between partners' experience of Timor-Leste deployment and family support as measured by the DUSOCS

Experience of Timor-Leste deployment	*n*	Mean	SD	Adjusted mean difference	(95% CI)[a]	*p*-value
Very positive/positive	138	60.0	21.6	0	Baseline	
Neither positive or negative	194	60.2	20.4	–0.52	(–5.17, –4.13)[a]	0.83
Negative/very negative	85	47.4	22.1	–13.30	(–19.06, –7.53)[a]	<0.001

a. Adjusted mean difference of partners' family support DUSOCS score by experience of Timor-Leste deployment, adjusted for partners' age (18–29, 30–39, 40–49, 50+ years), sex and education level, and ADF members' rank and Service.
Note: *N* = 417.

Table 7.20 Association between partners' experience of Timor-Leste deployment and non-family support as measured by the DUSOCS

Experience of Timor-Leste deployment	*n*	Mean	SD	Adjusted mean difference	(95% CI)[a]	*p*-value
Very positive/positive	138	40.5	22.1	0	Baseline	
Neither positive or negative	194	37.0	19.2	–5.43	(–9.86, –0.99)[a]	0.02
Negative/very negative	85	35.1	19.7	–7.62	(–13.12, –2.12)[a]	0.007

a. Adjusted mean difference of partners' non-family support DUSOCS score by experience of Timor-Leste deployment, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 417.

Those who reported a negative experience of Timor-Leste deployment were more likely to report a lower level of social support from both family and non-family than those who reported a positive experience of the Timor-Leste deployment.

Social support and child emotions and behaviour

Table 7.21 Association between child emotions and behaviour and social support as measured by the SDQ (total difficulties subscale) and DUSOCS

	Normal total difficulties (score <17)		Abnormal total difficulties (score ≥17)				
Social support	***n***	**%**	***n***	**%**	**OR[a]**	**95% CI**	***p*-value**
Family support[b]							
Low support (0–50)	288	79.3	75	20.7	1	Baseline	
Medium support (57–71)	383	89.9	43	10.1	0.39	(0.24, 0.64)	<0.001
High support (79–100)	243	92.7	19	7.3	0.27	(0.16, 0.48)	<0.001
Non-family support[b]							
Low support (0–30)	414	85.9	68	14.1	1	Baseline	
Medium support (40)	214	87.7	30	12.3	0.77	(0.47, 1.28)	0.31
High support (50–100)	286	88.0	39	12.0	0.78	(0.48, 1.28)	0.33

a. Adjusted for child's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,042.

Children from families with medium and high family support were statistically significantly less likely to have behavioural problems than children from families who reported low family support as measured by the total difficulties subscale on the SDQ. Non-family support did not affect reported difficulties.

Table 7.22 Association between child emotions and behaviours and social support as measured by the SDQ (prosocial subscale) and DUSOCS

	Normal prosocial (score >4)		Abnormal prosocial (score ≤4)				
Social support	***n***	**%**	***n***	**%**	**OR[a]**	**95% CI**	***p*-value**
Family support[b]							
Low support (0–50)	339	89.7	43	11.3	1	Baseline	
Medium support (57–71)	417	95.9	18	4.1	0.32	(0.18, 0.58)	<0.001
High support (79–100)	267	98.5	4	1.5	0.10	(0.04, 0.29)	<0.001
Non-family support[b]							
Low support (0–30)	461	92.4	38	7.6	1	Baseline	
Medium support (40)	233	94.0	15	6.0	0.89	(0.45, 1.74)	0.73
High support (50–100)	329	96.5	12	3.5	0.45	(0.22, 0.92)	0.03

a. Adjusted for child's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,078.

Child outcome scores on the prosocial subscale follow a trend similar to that seen for the total difficulties subscale. Children from families with medium and high family support were statistically significantly less likely to have low levels of positive helping than children from families who reported low family support.

High levels of non-family support were also associated with reduced risk for low levels of prosocial behaviour.

Table 7.23 Association between child emotions and behaviours and social support as measured by the SDQ (impact subscale) and DUSOCS

	Normal impact (score < 2)		Abnormal impact Score (score ≥ 2)				
Social support	***n***	**%**	***n***	**%**	**OR[(a)]**	**95% CI**	***p*-value**
Family support[b]							
Low support (0–50)	284	78.1	79	21.9	1	Baseline	
Medium support (57–71)	350	85.2	61	14.8	0.62	(0.41, 0.94)	0.02
High support (79–100)	230	89.8	26	10.2	0.37	(0.22, 0.64)	<0.001
Non-family support[b]							
Low support (0–30)	388	82.8	80	17.2	1	Baseline	
Medium support (40)	199	84.0	38	16.0	0.82	(0.52, 1.31)	0.41
High support (50–100)	274	85.1	48	14.9	0.80	(0.51, 1.23)	0.30

a. Adjusted for child's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank and Service.
b. Categories created based on the tertiles of the DUSOCS family support and non-family support scales.
Note: *N* = 1,019.

In keeping with the results for the total difficulties and prosocial scales, high levels of family support were associated with a lower risk of problem behaviours affecting the child and family.

Social and organisational support used by Timor-Leste partners during their ADF member's deployment

Partners in the Timor-Leste group were asked about the sources of support available to them during Timor-Leste deployment. Figure 7.4 shows the results.

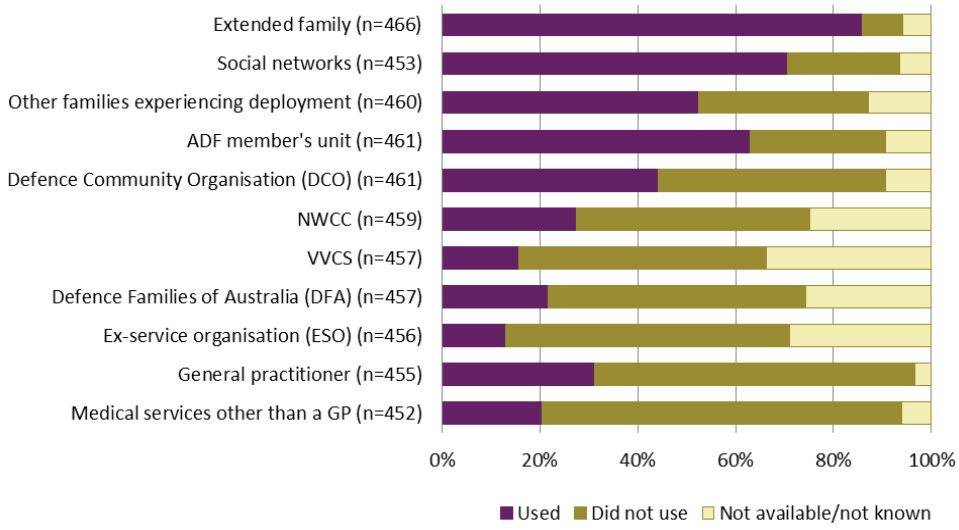


Figure 7.4 Sources of support used by partners during Timor-Leste deployment

During Timor-Leste deployment partners tended to use informal sources of support such as their extended family, social network or other families experiencing deployment. Of the formal Defence-specific supports, a larger proportion of partners used the ADF member's unit, the Defence Community Organisation and the National Welfare Coordination Centre (see Figure 7.5).

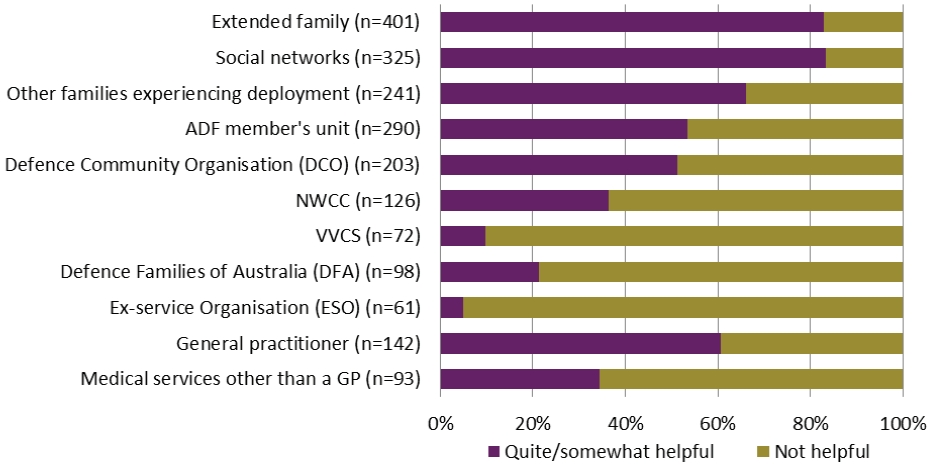


Figure 7.5 Helpfulness of sources of support used by partners during Timor-Leste deployment

The rated helpfulness of each source of support varied widely, but the overall pattern of results echoed the results from the DUSOCS. The Timor-Leste

partners considered family, friends and social networks helpful while fewer partners rated formal support services as helpful.

Summary: social support

Partners who reported more family and non-family support were statistically significantly less likely to have symptoms of Posttraumatic Stress Disorder and psychological distress. A similar pattern was observed with the mental health score on the SF-12. There was, however, no clear association between physical health and social support.

Ratings of the deployment experience not only affected partners' health but also influenced their assessment of the support available to them.

Overall, there was a strong relationship between medium and, in particular, high family support as a protective factor for children against at-risk behavioural and social problems and for the impact these behaviours have on the family. There was less evidence of non-family support being protective for children.

Service use

Almost one-third of partners had sought help for stress or emotional, health or family problems in the preceding year. Fifteen per cent reported that they had been unable to fulfil their usual work or family responsibilities for at least one month in the preceding five years.

Table 7.24 Rates of diagnosis and treatment received by partners for specified disorders or conditions in the preceding five years

Disorder/ condition	Reported disorder/ condition	Did not report outcome	Diagnosed by doctor		Received treatment		Therapy/ counselling		Medication		Other treatment	
	N	*N*	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Trauma	30	1,150	28	93	30	100	22	73	23	76	9	30
Depression	96	1,084	89	95	90	94	69	72	74	77	4	4
Anxiety	74	1,106	65	88	68	92	53	72	48	65	2	3
Eating disorder	4	1,176	3	75	4	100	4	100	0	0	1	25
Other	81	1,099	76	94	75	93	22	27	41	51	4	54

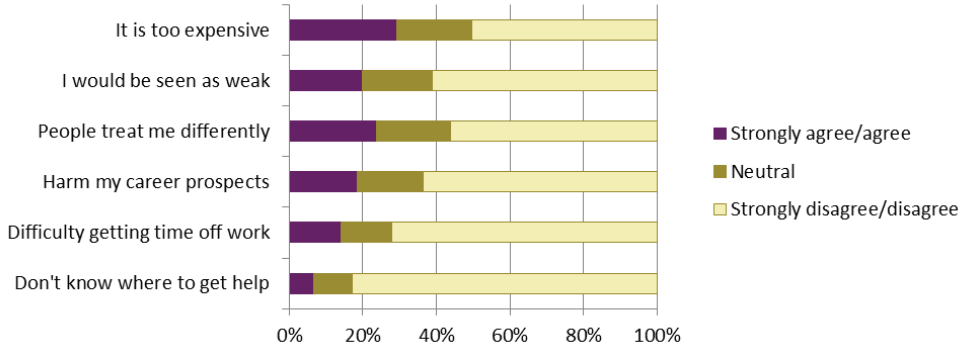
Most partners (75–95 per cent) who responded that they suffered from specified disorders or conditions were diagnosed by a doctor and almost all of them (92–100 per cent) reported receiving some kind of treatment. Although this might reflect a response bias—that is, those who received a diagnosis from a doctor were more likely to report it and a formal diagnosis is more likely to lead to formal treatment—it indicates a high level of help-seeking.

Summary: service use

Overall, partners had a very high rate of help-seeking, 92 to 100 per cent of those with specified health conditions seeking treatment. Partners turned most frequently to other families for support (their extended family, their social network or other families experiencing deployment). They also used formal support services, although the helpfulness of these reportedly varied.

Barriers to care

Partners of ADF members were asked how potential barriers—such as 'perceived expense', 'stigma', 'difficulty getting time off work' or 'not knowing where to get help'—might affect their decision to seek help for mental health problems (see Figure 7.6).



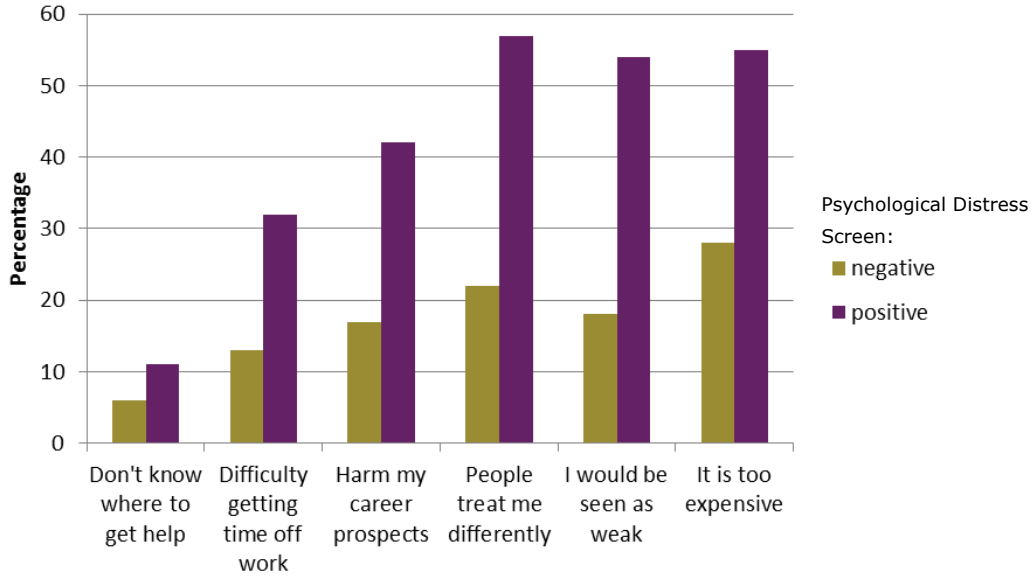
Note: *N* = 1,181.

Figure 7.6 Barriers to seeking mental health care for the partners of ADF members

Overall, about one-third of people agreed that perceived barriers to care would prevent them from seeking help for mental health problems.

The greatest perceived barrier for ADF partners was that seeking help would be too expensive, nearly one in three agreeing or strongly agreeing with this statement.

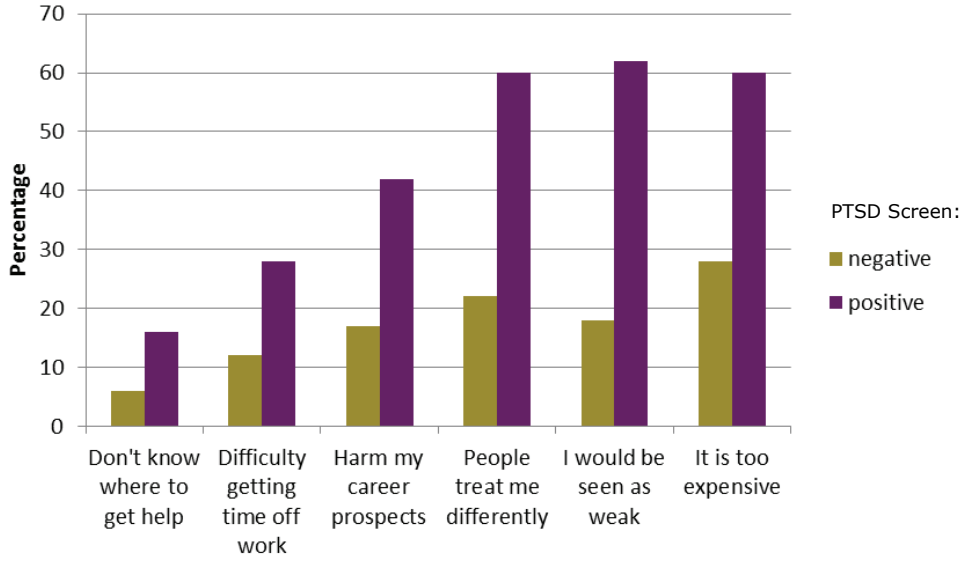
Individuals with more severe mental health problems often perceived a greater number of barriers to care. Barriers to care for partners who screened positive on the K10 and PCL-C were compared with those for partners who screened negative on those measures (see Figures 7.7 and 7.8).



Note: Positive = K10 score ≥30; *n* = 70. Negative = K10 <30; *n* = 1,109

Figure 7.7 Positive and negative screens on the K10 and proportion of partners endorsing barriers to care

Although the prevalence rate for partners experiencing psychological distress in the clinical range was low (*n* = 70), these partners were more likely to perceive barriers to care compared with those who reported less psychological distress. This difference was statistically significant ($p < 0.01$) for all barriers to care other than 'not knowing where to get help'.



Note: Positive = PCL-C ≥50; *n* = 56. Negative = PCL-C <50; *n* = 1,120.

Figure 7.8 Positive and negative screens on the PCL-C and proportion of partners endorsing barriers to care

A similar trend was observed on the PCL-C. Although few partners (*n* = 56) screened positively for Posttraumatic Stress Disorder, those who did were more likely to perceive barriers to care compared with partners who screened negatively. Again, this difference was statistically significant (p <0.01) for all barriers to care other than 'not knowing where to get help'.

Overall, partners with more severe mental health problems perceived a greater number of barriers to care. More than half of partners who scored above the clinical cut-off on the PCL-C or K10 believed that people would treat them differently, they would be seen as weak or that seeking help was too expensive.

Summary: barriers to care

The majority of partners (>80 per cent) knew where to seek help if needed, but cost (≈50 per cent) and stigma (≈40 per cent) were perceived to be barriers to seeking care. Partners with more severe mental health problems perceived a higher number of barriers, suggesting that those who are in greater need of help might find it more difficult to seek it.

Intimate partner violence

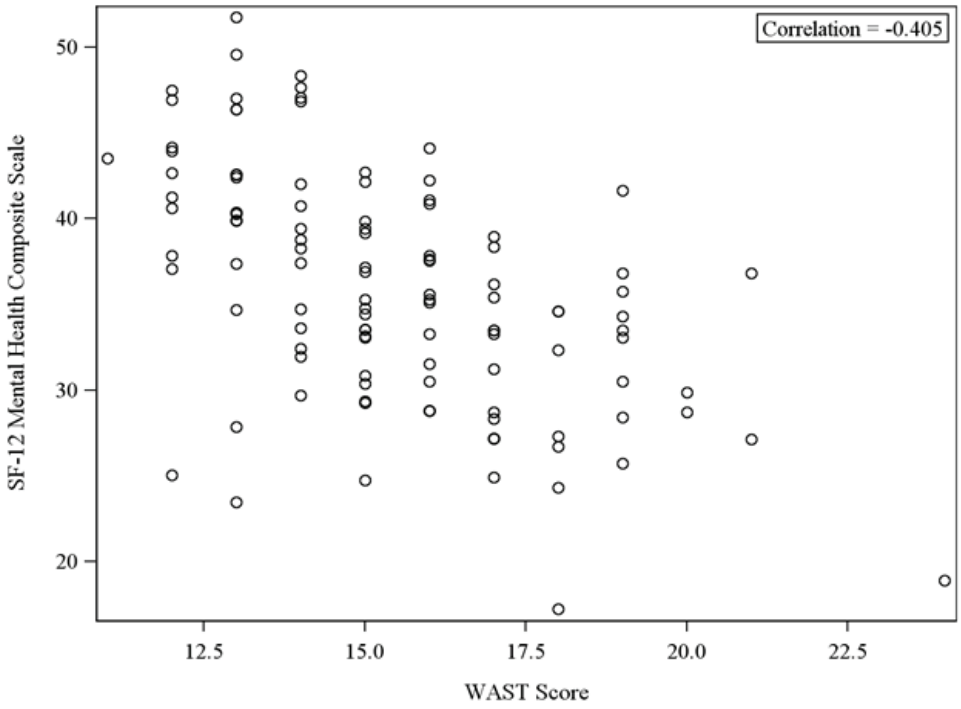
Intimate partner violence was assessed using the Woman Abuse Screening Tool. The first two items of the WAST are screening devices. Answering question 1 ('In general, how would you describe your relationship?') with 'a lot of tension' and/or question 2 ('Do you and your partner work out arguments with:') with 'great difficulty' constitute a positive screen for IPV. A positive screen does not

require the participant to endorse any items relating to violence, and the measure has been demonstrated to correctly classify more than 90 per cent of abused women (Brown et al. 2000). WAST scores generally range from 8 to 24, higher scores indicating more abuse. Chapters 3 and 4 provide more information about this measure.

IPV and partners' physical health

The model assessing the relationship between physical health and a positive screen for IPV on the WAST (after accounting for partners' age, sex and education level and ADF members' rank and Service) showed a statistically significant association; the correlation was, however, relatively small (r = 0.36).

IPV and partners' mental health



Notes: N = 114. Adjusted parameter estimates of partners' SF-12 MCS scores, adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.

Figure 7.9 Association between adjusted SF-12 MCS scores and positive screens on the WAST

Figure 7.9 shows a relationship between adjusted SF-12 mental health scores and scores on the WAST for partners who screened positively for IPV. Partners who reported more domestic abuse in their relationship also reported lower mental health scores. The model was statistically significant and the correlation moderate (r = −0.41).

Table 7.25 WAST means for partners who screened positively on the WAST and category scores on the K10

WAST score	*n*	Mean	Mean difference	(95% CI)	Adjusted mean difference	(95% CI)[a]	*p*-value
K10 <30	95	15.21				Baseline	
K10 ≥30	20	15.50	0.29	(–0.73, 1.30)	0.58	(–0.54, 1.70)	0.312

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 115.

The 105 partners who screened positively on the WAST were categorised into those reporting K10 scores above or below a screening cut-off of 30. Most partners (95) reported K10 scores of less than 30. There were, however, no statistically significant differences between the high and low levels of reported psychological distress and mean reported scores on the WAST.

Table 7.26 WAST means for partners who screened positively on the WAST and on the PCL-C

WAST score	*n*	Mean	Mean difference	(95% CI)	Adjusted mean difference	(95% CI)[a]	*p*-value
PCL-C <50	95	15.03				Baseline	
PCL-C ≥50	20	16.55	1.52	(0.37, 2.66)	1.60	(0.35,2.86)	0.01

a. Adjusted for partners' age (18–29, 30–39, 40–49, 50+), sex and education level, and ADF members' rank and Service.
Note: *N* = 115.

Of the 105 partners who screened positively on the WAST, 20 also screened positively for symptoms of Posttraumatic Stress Disorder. These partners also reported statistically significantly higher means on the WAST; that is, they reported more abuse.

IPV and child emotions and behaviour

Table 7.27 Association between child emotions and behaviour and partners' mean scores on the WAST if they screened positively

Measure	*n*	Mean	Mean difference	(95% CI)[a]	Adjusted mean difference	(95% CI)[b]	*p*-value
Positive screen WAST and child total difficulties (*N* = 108)							
Normal total difficulties	73	15.01		Baseline		Baseline	
Abnormal total difficulties	38	15.92	0.91	(–0.20, 2.01)	0.64	(–0.26, 1.53)	0.17
Positive screen WAST and child prosocial behaviour (*N* = 111)							
Normal prosocial behaviour	101	15.19		Baseline		Baseline	
Abnormal prosocial behaviour	14	16.92	1.73	(0.38, 3.08)	1.89	(0.57, 3.22)	<0.01
Positive screen WAST and child impact (*N* = 104)							
Normal impact	65	15.02		Baseline		Baseline	
Abnormal impact	39	16.03	1.01	(–0.09, 2.12)	0.80	(-0.04, 1.64)	0.06

a. Crude mean difference of partners' QRI subscale score by SDQ subscales.
b. Adjusted for child's age range (4–10, 11–17) and sex, partners' sex and education level, and ADF members' rank, and Service.

Positive screens for intimate partner violence on the WAST were associated with low scores on measures of child prosocial behaviour; that is, the child was reported as having fewer prosocial behaviours.

Summary: intimate partner violence

IPV was associated with a higher likelihood of a positive screen for Posttraumatic Stress Disorder and worse mental health scores. It was not, however, associated with psychological distress as measured by the K10.

For children, increased IPV reported by their parent was associated with fewer prosocial behaviours, but there was no effect on reported difficulties or the impact of those difficulties.

Discussion

This chapter investigates potential risk and protective factors associated with the physical, mental and family health of partners and children—family functioning, coping, quality of relationship, social support, service use, and intimate partner violence.

Risk and protective factors can exacerbate or ameliorate effects associated with military life for partners and children, and many such factors are amenable to policy and practice intervention.

Family functioning

Non-balanced families are those who scored in the mid-range or unbalanced categories for flexibility and cohesion. All families can function in this range at some point, but families who do so for prolonged periods are more likely to experience problems (Franklin et al. 2001; Olson & Gorall 2003).

Non-balanced family functioning was statistically significantly associated with poorer mental health, higher psychological distress, and a higher likelihood of screening positive for Posttraumatic Stress Disorder. Although non-balanced families did not report elevated emotional and behavioural difficulties for children, they did note that the impact of these behaviours on the family was higher.

Coping

High emotion-focused coping was significantly associated with poorer mental health, higher psychological distress and a greater likelihood of screening positively for Posttraumatic Stress Disorder. These findings are consistent with results from other research, which has found that emotion-focused strategies, such as substance use and self-blame, can become stressors in themselves and over-reliance on them can potentially exacerbate problems (Austenfeld & Stanton 2004; Dimiceli et al. 2010).

The findings relating to the protective nature of problem-focused coping were less clear. Other research has suggested that problem-focused coping is protective for mental health (Dimiceli et al. 2010; Penley et al. 2002). In the present study, however, the negative effects of high emotion-focused coping appeared to mask any benefits of problem-focused coping: partners with a combination of high emotion- and high problem-focused coping fared second-worst when it came to health outcomes.

Coping strategies vary across the life span, and most people will activate both types of coping in response to stress (Folkman et al. 2004). It is possible that partners who had much to cope with (for example, poor health) activated more coping strategies. Additionally, problem-focused coping strategies are considered to be most effective for controllable stressors (Dimiceli et al. 2010). In the present study partners were asked to think about problems they might have experienced as the partner of an ADF member, and many of these, such as deployment and relocation, are beyond the control of the individual.

Quality of relationship

Relationship quality was significantly related to mental health. The more social support and depth (security and importance) reported in the partners' relationship the better the scores on the mental health measures. Higher levels of conflict were associated with poorer outcomes on the mental health measures. This overall pattern also held true for children, suggesting that better quality relationships between parents result in better child outcomes.

Social support

Social support was significantly associated with mental health: partners who reported higher levels of family and non-family support were more likely to have better mental health and less likely to be in the higher categories of psychological distress or to screen positively for Posttraumatic Stress Disorder. Those who received more support also reported fewer problems for their children. Family support was more strongly associated with positive outcomes than non-family support. However, partners who perceived their experience of Timor-Leste deployment as negative also reported that they received less family and non-family support.

This finding is particularly interesting when considered in conjunction with the findings in Chapter 6—specifically, that partners who perceived the Timor-Leste deployment experience as negative also tended to report worse physical and mental health and poorer quality of relationships. It is not clear, however, whether negative experiences result in poorer health outcomes and worse perceptions of support or if lower levels of physical and mental health affect perceptions of partner and social relationships.

During the Timor-Leste deployment, families most often turned for help to other families, either their own extended family or other families experiencing deployment. This has implications for policy: programs that facilitate connections with families, such as programs offering relocation during the ADF member's deployment (dependent on certain conditions), might make a positive contribution to the health of partners and children. Initiatives that connect families experiencing a deployment—such as mentoring programs or family readiness groups—might also be effective for partners.

Overall, Defence-specific formal supports used during Timor-Leste deployment were rated as less helpful by about 50 per cent of partners, and up to one-third reported that they had a low level of knowledge about or access to these services. This could suggest a mismatch between what partners are seeking from these services and what is offered, which in turn suggests that partners might need better information or improved referral procedures. Given that many partners might be reporting experiences that occurred more than a decade ago, however, previous dissatisfaction with Defence services might not relate to current experiences.

Service use and barriers to mental health care

Compared with other studies, partners exhibited a high level of help seeking and it is possible this was an important factor in the overall good health of those who participated in the present study. For example, Eaton et al. (2008) found that 68 per cent of spouses who screened positive for a mental health problem received mental health care; in the present study 92 to 100 per cent of partners who reported a formal diagnosis had received treatment.

In relation to barriers to care for mental health, those who reported poorer mental health perceived more barriers to care. In turn, this might have implications for health care policies since it suggests that those who most need support could find it more difficult to gain access to this support.

Intimate partner violence

Intimate partner violence appeared to be a risk factor: it was significantly associated with poorer mental health scores and more symptoms of Posttraumatic Stress Disorder. For children, IPV reported by their parent was not related to difficulties or impact, but it did have a negative effect on prosocial behaviours.

Measurement of sensitive factors such as IPV is very difficult, and such matters are often under-reported. This could have played a role in the relatively low prevalence of IPV reported by partners. It is, however, the first estimate of the level of IPV in ADF families. The acceptable level for IPV is, of course, zero. This research provides evidence that intimate partner violence constitutes a problem for Australian military families, and it affects not only partners but also children.

8 The association between an ADF member's health and their family's health

The relationship between family members is dynamic and their health can be interlinked (Andres & Moelker 2011). This chapter matches ADF members with their partner and children to explore the health relationships between family members. The overall health of all partners and children is discussed in Chapters 4 and 5. The present chapter explores the relationship between the ADF member and their partner's health, as well as the relationship between the child's emotional and behavioural wellbeing and the deployed and at-home parents' health. It responds to the last three hypotheses associated with research aim 2.

Research aim 2

To identify any risk and protective factors associated with any health impacts.

Hypotheses

3. There will be associations between an ADF member's physical, mental, and family health and their current partner's physical, mental, and family health.

4. There will be associations between an ADF member's physical and mental health and their child's emotional and behavioural health.

5. There will be associations between an ADF member's physical and mental health, their partner's physical and mental health, and their child's emotional and behavioural health.

Main findings

(Note that the associations reported here do not imply causation or direction.)

ADF members and their partners' health

- ADF members with better physical health were statistically significantly more likely to have partners with a better view of their physical health.
- The partners of ADF members who reported more risky or problematic drinking were statistically significantly more likely to report more risky or problematic drinking.
- When an ADF member was experiencing high psychological distress, their partner was three times more likely to be experiencing very high psychological distress.

- There was a strong, statistically significant relationship between the frequency and severity of symptoms of Posttraumatic Stress Disorder in ADF members and such symptoms in their partner.
- There was a clear, statistically significant relationship between ADF members' psychological distress and partners' problematic drinking.
- Partners were statistically significantly more likely to report high psychological distress if their ADF member reported more risky or problematic drinking.
- Partners were statistically significantly more likely to drink in a high range when their ADF member screened positive for Posttraumatic Stress Disorder.
- When ADF members screened positive for Posttraumatic Stress Disorder their partners were statistically significantly more likely to have high psychological distress.

ADF members, their partners and their children

- There was a statistically significant relationship between ADF members' alcohol use and negative outcomes for children.
- There was a statistically significant relationship between a partner's and their ADF member's psychological distress and negative outcomes for children.
- There was a clear, statistically significant relationship between the partner's and the ADF member's symptoms of Posttraumatic Stress Disorder and negative outcomes for children.

Introduction

Partners

As discussed in Chapter 4, the partners of deployed military personnel can have elevated rates of psychiatric illness and can experience adverse physical health (e.g. Burton et al. 2009; Caspi et al. 2010; Eisen et al. 2006; Mansfield et al. 2010; O'Toole et al. 2010). In studies that match veterans with partners, ratings of stress have been correlated, and combat exposure significantly predicted stress for both military personnel and their partners (Allen et al. 2011).

The impact of deployment on the health of partners is perhaps most clearly seen in the study of Posttraumatic Stress Disorder and secondary traumatisation. Secondary traumatisation occurs when the deployed member's PTSD symptoms and/or deployment exposures (such as combat) adversely affect the partner's health and wellbeing. It can occur as a result of common stressors (for example, financial problems), indirectly (for example, the veteran's distress causing undermining behaviours) or directly (for example, through empathy) (Allen et al. 2010). Secondary traumatisation of partners has been observed in studies of veterans from Iraq, Afghanistan, Vietnam, Croatia and Lebanon (de Burgh et al.

2011; Dirkzwager et al. 2005; Ein-Dor et al. 2010; Franciskovic et al. 2007; Herzog 2008; Manguno-Mire et al. 2007; Sherman et al. 2005) and has also been observed in the partners of peacekeepers (Dirkzwager et al. 2005).

In an Australian study 10 out of 11 psychiatric diagnoses in partners were associated with veteran characteristics, strongly suggesting that veterans' ill-health and deployment experiences contributed to partners' risk of mental health disorders (O'Toole et al. 2010). This included secondary traumatisation, with veteran PTSD predicting partner PTSD (O'Toole et al. 2010). In a study by Melvin et al. (2011), however, secondary traumatic stress was found in one-third of partners but could be accounted for by previous trauma history in the partner.

PTSD and trauma symptoms in serving members are negatively related to marital functioning and are associated with lower relationship satisfaction for both the serving member and their partner (Allen et al. 2010; Gewirtz et al. 2010; Goff et al. 2007; Khaylis et al. 2011). Combat exposure has been correlated with a higher incidence of depression, anxiety and PTSD and lower relationship satisfaction in partners (Al-Turkait & Ohaeri 2008; Bjornestad 2010; Caspi et al. 2010; Franciskovic et al. 2007; O'Toole et al. 2010; Renshaw et al. 2008). Of all the symptoms associated with PTSD, anger is most likely to have a direct impact on the health and wellbeing of family members (Evans et al. 2003).

Children

Child health has been correlated with the health of both parents, but studies consistently find that the most important predictor of child psychosocial functioning is the health of the at-home parent (Al-Turkait & Ohaeri 2008; Andres & Moelker 2011; Barker & Berry 2009; Chandra et al. 2008; Flake et al. 2009; Lester et al. 2010; Paris et al. 2010).

Transfer of stress—both stressors and stress-related behaviours—from veterans to children is found particularly for veterans with combat exposure and PTSD (Dekel & Goldblatt 2008). In a US study the psychological distress of the veteran predicted increased child depression and internalising and externalising symptoms, independent of the distress of the at-home parent, and greater veteran symptoms were related to greater child symptoms (Lester et al. 2010). Herzog (2008) found that veteran PTSD was significantly related to child behaviour problems, with internalising symptoms indicating the presence of secondary traumatic stress. There was some suggestion that the secondary stress of the at-home parent mediated the impact between veteran PTSD and child secondary traumatic stress (Herzog, 2008). In a small Australian study, however, intergenerational transmission was not supported because veteran PTSD was not found to be associated with problems of child self-esteem or PTSD, although veteran PTSD was found to have a negative influence on family functioning (Davidson & Mellor 2001). Thus, the effect of the veteran's health and deployment experiences on their children can be direct or can reflect the secondary traumatisation of the at-home parent (Herzog 2008).

The relationship between parent and child health appears to be bi-directional, such that parental stress can lead to reduced care and child attachment and behaviour problems can cause increased stress for parents (Allen et al. 2011; Barker & Berry 2009; Posada et al. 2011). Some soldiers have found parenting more stressful after deployment (Khaylis et al. 2011), and PTSD symptoms can predict parenting challenges (Gewirtz et al. 2010).

Child outcomes generally vary according to the quality of the relationship with the at-home parent and the support available to the family (Posada et al. 2011). Further, maternal support is protective against the development of conduct (that is, behavioural) problems and emotional symptoms in children (Morris & Age 2009). A meta-analysis of studies of parents' reporting of children's problem behaviours found that mothers consistently reported more problem behaviours than fathers (Duhig et al. 2000). Mothers are, however, more likely to be the at-home parent, particularly in military families. A study by Davé et al. (2008) was the first to compare the agreement of the mother's and father's rating of their child on the Strengths and Difficulties Questionnaire. It found differences such as lower agreement on the reporting of abnormal compared with normal behaviours and higher agreement for male compared with female children. Differences were mediated by a number of demographic variables, among them alcohol misuse, the couple's relationship and the father's employment. As a result, the inter-relationship between the health of the deployed parent, that of the at-home parent and that of the child is of particular interest. To date, no Australian studies have investigated this trio of relationships.

In order to gain a better understanding of the impact of military life on families, this chapter investigates whether there are intergenerational effects on health transmitted from ADF member to partners and children. The relationship between the health of the ADF member and their partner is explored, as is the health of the ADF member, their partner and their children.

Method

Five measures were applied to both a partner and an ADF member: the Short Form general health question, the Alcohol Use Disorder Identification Test, the Kessler measure of psychological distress, the PTSD Checklist, and relationship satisfaction. The findings from the partner and ADF member responses to these measures are reported here.

Measures

The following outcome measures are used in this chapter:

- demographics
- physical health
  - Short Form-12 (SF-12) PCS

  - Alcohol Use Disorder Identification Test (AUDIT)
- mental health
  - Short Form-12 (SF-12) MCS
  - psychological distress—Kessler-10 (K10)
  - Posttraumatic Stress Disorder—PTSD Checklist – Civilian Version (PCL-C)
- family health
  - child emotions and behaviour—Strengths and Difficulties Questionnaire (SDQ)
  - relationship satisfaction.

Chapter 3 provides brief descriptions of these measures.

Results

Analyses

Statistical modelling was used to investigate the influence of the health of the ADF member and their partner on the behavioural and emotional health of their child or children. Logistic regression models included both the psychological health of the ADF member and the partner as independent variables and the child's results from the SDQ as the outcome variables. Through these models it was possible to assess whether the association between the parent's and the child's health was stronger for the ADF member or the partner.

The data on physical and mental health measures were matched between ADF members and their partners. This allowed analyses to determine if a direct relationship existed between the ADF members' health and their partners' health. ADF members and their matched partners' data were subsequently linked with available child data for that family. Intergenerational effects from parent health to child outcomes were then tested.

Demographics

For all the partners in the sample (N = 1332) there were matching ADF member data in 63 per cent of cases (n = 842). To qualify as a matched partner, data were needed from both the partner and the ADF member. In some cases there were ADF member data but not partner data, or vice versa. Further, some ADF members opted not to have their partners contacted.

The majority of the 842 matched partner and ADF member sample were married (90 per cent) and had been together for over 11 years (71 per cent). A large number of members (87 per cent) were in active service, and in 27 per cent of these cases both couples were serving. Table 8.1 provides details.

Table 8.1 Characteristics of respondent ADF members and their current partners

Characteristic		Matched pairs *N* 842	Matched pairs % 100
MilHOP	ADF member MilHOP participant	521	62
	ADF member not in MilHOP	321	38
Relationship status	Married	754	90
	De facto	70	8
	Other	16	2
Years together	0–2	16	2
	3–5	53	6
	6–10	174	20
	11+	588	71
Service	Navy	167	20
	Army	481	57
	RAAF	194	23
Service status	Active	734	87
	Ex-serving	108	13
Dual-serving couples		208	27
Number of children	0	214	28
	1	165	21
	2	271	35
	3	96	12
	4+	26	3

a. These data were not obtained for all the participants.
Note: *N* = 842.

ADF members and partners were compared on physical and mental health measures. The overall means and standard deviations for members and partners on each measure are shown in Table 8.2.

Table 8.2 Means and standard deviations for ADF members and partners on physical and mental health measures

		ADF member		Partner		Mean difference		
	n	Mean	(SD)	Mean	(SD)	95% CI		*p*-value
SF-12 Physical	563	48.9	(10.3)	51.8	(9.5)	–2.9	(–3.9, –1.8)	<0.0001
AUDIT	806	6.0	(5.1)	3.7	(3.4)	2.3	(1.9, 2.7)	<0.0001
SF-12 Mental	563	48.4	(10.5)	48.0	(11.3)	0.5	(–0.7, 1.6)	0.42
K10	842	16.2	(6.6)	16.3	(6.8)	–0.10	(–0.68, 0.49)	0.74
PCL-C	752	26.7	(12.5)	25.3	(10.3)	1.5	(0.5, 2.6)	0.004

Table 8.2 compares the health of ADF members with that of partners. ADF members scored statistically significantly higher than partners on alcohol consumption as measured by the AUDIT. Interestingly, partners rated their physical health on the PCS as statistically significantly higher than the ADF member, although the mean difference was only three points. This finding could be a result of response bias; for example, ADF members might compare themselves with other physically healthy people in the Defence Force, which might negatively influence their perception of their own physical health. ADF members' and partners' scores on psychological distress and mental health, as measured by the K10 and the SF-12 mental health scale respectively, were not statistically significantly different. ADF members scored statistically significantly higher than their partners on PTSD symptoms, as measured by the PCL-C.

ADF members' and partners' physical health

Table 8.2 compares ADF members with partners but does not look at outcomes in relation to matched pairs. The following analyses compare the relationship between an ADF member's health and their partner's health.

Table 8.3 ADF members' and partners' matched scores on the PCS

ADF members' PCS score	Partners' PCS score			Mean difference	95% CI	*p*-value
	n	Mean	SD			
0–47.2	195	49.5	11.0	0	Reference	
47.2–54.8	155	53.2	8.2	3.69	(1.70, 5.67)	0.0003
54.8–100	213	52.7	8.7	3.21	(1.38, 5.04)	0.0006

Note: *N* = 563.

There was a statistically significant relationship between the physical health of the ADF member and the health of their partner (see Table 8.3). ADF members with better physical health were more likely to have partners with a better view of their own physical health. Specifically, ADF members in the lowest tertile of physical health scores had partners with scores 3.2 to 3.7 points lower on this scale, which ranged from 0 to 100.

ADF members' and partners' scores on the AUDIT alcohol consumption scale were examined to determine if there was a significant relationship between ADF members' drinking and their partners' problematic drinking (that is, scores 16 or greater on the AUDIT) (see Table 8.4).

Table 8.4 ADF members' and partners' matched scores on the AUDIT for partners scoring ≥16 on the AUDIT

ADF members' AUDIT	Partners' score (0–15 AUDIT)		Partners score (≥16 AUDIT)		Odds ratio	95% CI	*p*-value
	n	%	*n*	%			
0–15	806	99.3	6	0.7	1	Reference	
16–40	48	91.6	5	9.4	13.99	(4.12, 47.49)	<0.001

Note: *N* = 865.

When ADF members scored 16 or above on the AUDIT their partners were statistically significantly more likely to score 16 or above as well. This suggests that high alcohol use by ADF members is related to heavier alcohol use by their partners. The number of partners who presented with high alcohol use (that is, scored 16 or above on the AUDIT) was, however, low (n = 11), so the results should be interpreted cautiously.

ADF members' and partners' mental health

Psychological distress scores, measured by the K10, were compared between ADF members and partners (see Table 8.5). Scores equal to or above 30 on the K10 are indicative of significant psychological distress.

Table 8.5 ADF members' and partners' matched scores on the K10 for partners who score ≥30 K10

ADF members' K10 score	Partners' score (<30 K10)		Partners' score (≥30 K10)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
10–15	505	95.3	25	4.7	1	Reference	
16–29	267	93.7	18	6.3	1.36	(0.73, 2.54)	0.33
30–50	47	87.0	7	13.0	3.01	(1.24, 7.33)	0.02

Note: N = 869.

When the ADF member had a high psychological distress score (≥30), the odds that their partner also had high psychological distress were three times greater than when the ADF member had a low K10 score (≤15).

This relationship was also examined for ADF members and partners for clinically significant PTSD symptoms (that is, scores of 50 or more on the PCL-C) (see Table 8.6).

Table 8.6 ADF members' and partners' matched scores on the PCL-C for partners scoring ≥50 on PCL-C

ADF members' PCL-C score	Partners' score (<50 PCL-C)		Partners' score (≥50 PCL-C)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
17–29	558	96.0	23	4.0	1	Reference	
30–49	147	93.0	11	7.0	1.82	(0.87, 3.81)	0.11
50–85	60	95.2	3	4.8	1.21	(0.35, 4.16)	0.76

Note: N = 802.

There was no clear association between ADF members' scores on the PCL-C and partners who scored 50 or more on the PCL-C. Even when ADF members scored above the clinical cut-off on the PCL-C (that is, 50–85), their partner was not more likely to have a score of 50 or above on the PCL-C.

Since there were comparatively few partners who scored above the clinical cut-off on the PCL-C, this relationship was also examined when partners had elevated, but not necessarily clinical, scores on the PCL-C (that is, scores of 30 or more) (see Table 8.7).

Table 8.7 ADF members' and partners' matched scores on the PCL-C for partners scoring ≥30 on PCL-C

ADF members' PCL-C score	Partners' score (<30 PCL-C)		Partners' score (≥30 PCL-C)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
17–29	476	82.5	101	17.5	1	Reference	
30–49	106	67.5	51	32.5	2.27	(1.52, 3.38)	<0.001
50–85	36	57.1	27	42.9	3.54	(2.05, 6.09)	<0.001

Note: *N* = 797.

Scores above 30 suggest a high number of PTSD symptoms, but they might not warrant a diagnosis of PTSD. There was a statistically significant association between higher ADF member scores on the PCL-C and partners who scored 30 or more on the PCL-C. When ADF members scored 30 to 49 on the PCL-C their partner was twice as likely to score above 30 on the PCL-C. Similarly, when the ADF member scored 50 or over partners were three times more likely to have a score of 30 or greater on the PCL-C.

These findings suggest that ADF members' experience of high PTSD symptoms is statistically significantly related to high ratings of PTSD symptoms in partners —but only when partners' PTSD symptoms are elevated (30 or greater on the PCL-C) but not necessarily clinical (50 or greater on the PCL-C).

The agreement between ADF members' and partners' ratings of relationship satisfaction was examined (see Table 8.8). Scores on the diagonal represent agreement between the ADF member and their partner.

Table 8.8 ADF member and partner relationship satisfaction ratings

ADF member relationship satisfaction	Partner relationship satisfaction					
	Satisfied		Neither		Dissatisfied	
	n	%	*n*	%	*n*	%
Satisfied	**836**	**87**	36	4.0	25	
Neither	26	3	**2**	**0.2**	7	0.7
Dissatisfied	17	2	6	0.6	**9**	**0.9**

Notes: *N* = 954. 'Extremely satisfied' and 'satisfied' and 'extremely dissatisfied' and 'dissatisfied' were collapsed into single categories. The diagonal categories represent instances where the ADF members' and partners' ratings were the same.

Ninety-one per cent of partners (*n* = 883) and 92 per cent of ADF members (*n* = 905) reported that they were satisfied or extremely satisfied with their relationship, there being 87 per cent agreement between them. In comparison, only 4.2 per cent (*n* = 41) of partners and 3.4 per cent (*n* = 33) of ADF

members reported that they were dissatisfied or extremely dissatisfied. There was no statistically significant difference between the level of relationship satisfaction reported by ADF members and partners (p = 0.08).

In summary, 87 per cent of military couples were satisfied or extremely satisfied with their relationship.

Associations between ADF member and partner outcomes on different health measures

The introduction to this chapter points out that not only might PTSD symptoms in the veteran be related to PTSD symptoms in their partner but the partner might have reported increased symptoms of psychological distress or alcohol use as well. Additional analyses were therefore performed on the relationship between ADF member and partner outcomes that were theoretically valid. For example, there was no evidence that ADF members' alcohol use would be associated with PTSD symptoms in partners, so this relationship was not examined. The reverse might, however, be true, such that PTSD symptoms in ADF members might be associated with alcohol use in partners, so this relationship was explored.

The following relationships between ADF members and their partners were examined:

- ADF member alcohol use (AUDIT) and partner psychological distress (K10)
- ADF member psychological distress (K10) and partner alcohol use (AUDIT)
- ADF member PTSD symptoms (PCL-C) and partner psychological distress (K10)
- ADF member PTSD symptoms (PCL-C) and partner alcohol use (AUDIT).

ADF member alcohol use and partner psychological distress

The ADF members' consumption of alcohol was analysed to determine if there was a relationship between ADF members' drinking and high psychological distress in partners (that is, scores ≥30 on K10). The results are presented in Table 8.9.

Table 8.9 ADF members' scores on the AUDIT matched with partners scoring ≥30 on K10

ADF members' AUDIT score	Partners' score (<30 K10)		Partners' score (≥30 K10)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
0–15	846	94.4	50	5.6	1	Reference	
16–40	8	66.7	4	33.3	8.46	(2.46, 29.05)	<0.001

Note: N = 908.

When ADF members scored highly on the AUDIT (that is, ≥16) their partners were statistically significantly more likely to have high psychological distress than when ADF members scored lower on the AUDIT.

ADF members' psychological distress and partners' alcohol use

ADF members' psychological distress, measured by the K10, was analysed to determine if the distress was related to high alcohol consumption in partners (that is, AUDIT scores ≥16). Table 8.10 shows the results.

Table 8.10 ADF members' scores on the K10 matched with partners scoring ≥16 on AUDIT

ADF members' K10 score	Partners' score (<16 AUDIT)		Partners' score (≥16 AUDIT)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
10–15	529	99.6	2	0.4	1	Reference	
16–29	275	97.5	7	2.5	6.73	(1.39, 32.63)	0.02
30–50	53	96.4	2	3.6	9.98	(1.38, 72.31)	0.02

Note: *N* = 868.

A statistically significant relationship was found between ADF members' psychological distress and high alcohol use in partners. When the psychological distress ADF members reported was high (16 or above on K10), partners were more likely to have high alcohol use. However, the low prevalence of high alcohol use by partners (n = 11) suggests that this conclusion might not be reliable.

ADF members' PTSD symptoms and partners' alcohol use

PTSD symptoms in ADF members, measured by the PCL-C, were analysed to determine if there was a relationship with problematic alcohol consumption in partners (AUDIT score ≥16). The results are shown in Table 8.11.

Table 8.11 ADF members' scores on the PCL-C matched with partners scoring ≥16 on AUDIT

ADF members' PCL-C score	Partners' score (<16 AUDIT)		Partners' score (≥16 AUDIT)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
17–29	593	99.5	3	0.5	1	Reference	
30–49	155	98.1	3	1.9	3.83	(0.77, 19.14)	0.10
50–85	61	93.9	4	6.2	12.96	(2.84, 59.26)	0.001

Note: *N* = 819.

The partners of ADF members who scored in the clinical range of PTSD symptoms on the PCL-C (that is, 50–85) were statistically significantly more likely to have a high score on the AUDIT. However, because of the very low numbers of partners scoring ≥16 on the AUDIT (n = 10) little could reliably be inferred from this analysis.

ADF members' PTSD symptoms and partners' psychological distress

PTSD symptoms in ADF members, measured by the PCL-C, were analysed to determine if scores were associated with partners' psychological distress (that is, a score of 30 or above on the K10). Table 8.12 shows the results.

Table 8.12 ADF members' scores on the PCL-C matched with partners scoring ≥30 on K10

ADF members' PCL-C score	Partners' score (<30 K10)		Partners' score (≥30 K10)				
	n	%	*n*	%	Odds ratio	95% CI	*p*-value
17–29	569	95.3	28	4.7	1	(Reference)	
30–49	149	93.1	11	6.9	1.50	(0.73, 3.08)	0.27
50–85	55	85.9	9	14.1	3.33	(1.49, 7.40)	0.003

Note: *N* = 821.

The partners of ADF members who scored in the clinical range of PTSD symptoms on the PCL-C (that is, 50–85) were statistically significantly more likely to have high psychological distress (a score of 30 or above) on the K10. There was no relationship between ADF members' subclinical scores on the PCL-C (that is, 17–49) and high partner psychological distress.

Summary: association between ADF member and partner mental health

Overall, there was a consistent relationship between ADF members' psychological health and their partner's psychological health. Heavier alcohol use in ADF members was associated with psychological distress and heavier alcohol use in partners. High psychological distress in ADF members was associated with high psychological distress and heavier alcohol use in partners. Finally, high PTSD symptoms in ADF members were associated with high psychological distress, a higher presentation of PTSD symptoms (that is, PCL-C scores of 30 or greater) and heavier alcohol use in partners.

Family health

To gain an understanding of potential intergenerational effects, the relationship between parents' health and children's emotional and behavioural outcomes was investigated. Specifically, the direct relationship between the partner's (the parent's) health and the child's emotional and behavioural health was examined, as was the direct relationship between the ADF member's (the deployed parent's) health and the child's emotional and behavioural health.

The following relationships were analysed:

Partner measure	ADF member measure	Child measure
AUDIT	AUDIT	SDQ total difficulties (at-risk score ≥17) SDQ prosocial behaviours (at-risk score ≤4) SDQ impact supplement scores (at-risk score ≥2)
K10	K10	SDQ total difficulties (at-risk score ≥17) SDQ prosocial behaviours (at-risk score ≤4) SDQ impact supplement scores (at-risk score ≥2)
PCL-C	PCL-C	SDQ total difficulties (at-risk score ≥17) SDQ prosocial behaviours (at-risk score ≤4) SDQ impact supplement scores (at-risk score ≥2)

Family health analyses

Preliminary analyses examined the direct relationship between both the partner's and the deployed parent's mental health and their child's emotional and behavioural outcomes. In each case there was a strong relationship between both the partner's and the deployed parent's health and child outcomes. To determine which pathway was the strongest, each relationship was analysed while controlling for the other parent's mental health. For example, when a parent's PCL-C score was associated with a child's outcomes on the SDQ, the other parent's PCL-C score was adjusted for. The results thus allow the researchers to determine which parent's (that is, ADF member's or partner's) mental health had the greater effect on the child.

Interactions were tested for in the models to assess whether poorer mental health scores in both parents resulted in an additional risk of poorer outcomes for the child on the SDQ. For each of the models the interactions were not found to be statistically significant.

ADF member and partner alcohol use and child health outcomes

The association between the AUDIT score of the partner, the AUDIT score of the ADF member and problematic child emotional and behavioural health, as measured by the SDQ total difficulties subscale for children in the abnormal or at-risk range of behaviours (that is, a score of ≥17), was examined. In each relationship tested, the other parent's AUDIT score was controlled for to determine which parent's alcohol use had a greater effect on the child (see Table 8.13).

Table 8.13 Partner and ADF member AUDIT scores examined in relation to total difficulties subscale of the SDQ

	Total difficulties (Normal <17)		Total difficulties (Abnormal ≥17)				
AUDIT score	***n***	**%**	***n***	**%**	**Odds ratio**	**95% CI**	***p*-value**
Partner							
0–15	899	87.1	133	12.9	1	Reference	
16–40	15	78.9	4	21.1	0.78	(0.11, 5.47)	0.80
ADF member							
0–15	615	88.5	80	11.5	1	Reference	
16–40	26	72.2	10	27.8	2.76	(1.24, 6.13)	0.01

Notes: *N* = 406 families; 725 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

There was no statistically significant relationship between partners' alcohol use and child behaviour outcomes on the SDQ total difficulties subscale. In contrast, a statistically significant association was found between high ADF member scores on the AUDIT (that is, ≥16) and abnormal total difficulties scores for children. Because of the low prevalence of partners reporting high alcohol use, the results must be interpreted with caution. There appears, however, to be some suggestion that there is a stronger relationship between ADF member alcohol use and child outcomes than there is with partner alcohol use.

The association between partner alcohol use (AUDIT), ADF member alcohol use (AUDIT) and problematic child social behaviours, as measured by the SDQ prosocial subscale was not able to be analysed since only two partners scoring 16 or more on the AUDIT had children scoring in the at-risk range on prosocial behaviours for children (see Table 8.14).

Table 8.14 Partner and ADF member AUDIT scores examined by prosocial scale of the SDQ

	Prosocial (normal >4)		Prosocial (abnormal ≤4)				
AUDIT score	***n***	**%**	***n***	**%**	**Odds ratio**	**95% CI**	***p*-value**
Partner							
0–15	1006	94.1	63	5.9			
16–40	17	89.5	2	10.5			
ADF member							
0–15	670	93.7	45	6.3			
16–40	34	89.5	4	10.5			

Note: *N* = 405 families; 738 children.

Finally, the association between partner alcohol use (AUDIT), ADF member alcohol use (AUDIT) and the impact of child emotional and behavioural problems, as measured by the SDQ impact supplement subscale for children in

the abnormal (at-risk) range of behaviours (that is, a score of ≥2), was examined (see Table 8.15).

Table 8.15 Parent and ADF member AUDIT scores examined by impact scale of the SDQ

	Impact (normal <2)		Impact (abnormal ≥2)				
AUDIT score	***n***	**%**	***n***	**%**	**Odds ratio**	**95% CI**	***p*-value**
Partner							
0–15	845	83.7	164	16.3	1	Reference	
16–40	17	89.5	2	10.5	0.75	(0.10, 5.57)	0.78
ADF member							
0–15	581	85.8	96	14.2	1	Reference	
16–40	24	68.6	11	31.4	2.59	(1.12, 5.99)	0.03

Notes: *N* = 390 families; 707 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

A statistically significant relationship was found between high alcohol use in ADF members and child impact scores but not for high partner alcohol use. As seen in earlier analyses, the number of partners scoring 16 or above on the AUDIT was very low, so the results should be interpreted cautiously. There is some suggestion that high alcohol use in ADF members had a stronger association with child impact scores compared with high partner alcohol use.

Summary: ADF member and partner alcohol use and child health outcomes

Overall, for all three measures on the SDQ, high alcohol use by ADF members was associated with poorer outcomes for their children. It is not, however, clear whether increased alcohol use by partners also affected children because very few partners reported risky levels of drinking.

ADF member and partner psychological distress and child health outcomes

The association between the K10 of the partner, the K10 of the ADF member and the total difficulties subscale for children in the abnormal range of behaviours (that is, a score of ≥17) was examined (see Table 8.16).

Table 8.16 Partner and ADF member K10 scores examined in relation to total difficulties subscale of the SDQ

	Total difficulties (normal <17)		Total difficulties (abnormal ≥17)				
K10 score	*n*	%	*n*	%	Odds ratio	95% CI	*p*-value
Partner							
10–15	607	93.2	44	6.8	1	Reference	
16–29	276	78.9	74	21.1	4.20	(2.50, 7.05)	<0.0001
30–50	27	58.7	19	41.3	7.64	(2.95, 19.78)	<0.0001
ADF member							
10–15	413	90.4	44	9.6	1	Reference	
16–29	198	87.2	29	12.8	1.14	(0.68, 1.95)	0.61
30–50	37	68.9	17	31.5	3.89	(1.84, 8.22)	0.001

Notes: *N* = 408 families; 728 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

There was a statistically significant association between partners' and ADF members' psychological distress and child health on the total difficulties subscale of the SDQ. As the partners' psychological distress increased, children were more likely to be reported as having at-risk levels of difficulties (behavioural problems). When partners scored from 16 to 29 on the K10 children were about four times more likely to have behavioural problems, and when partners scored 30 or above on the K10 children were almost eight times more likely to have significant behavioural problems. The relationship between higher psychological distress and child behaviour problems was also seen with the ADF member, although it was not as strong as that for the partner and was statistically significant only when the ADF member scored 30 or above on the K10. The partner's mental health was thus more strongly related to child behavioural health compared with the ADF member's mental health.

The association between partner K10, ADF member K10 and problematic child social behaviours, as measured by the SDQ prosocial subscale for children in the abnormal (at–risk) range of behaviours (score ≤4), was also examined (see Table 8.17).

Table 8.17 Partner and ADF member K10 scores examined in relation to prosocial subscale of the SDQ

K10 score	Prosocial (normal >4)		Prosocial (abnormal ≤4)		Odds ratio	95% CI	*p*-value
	n	%	*n*	%			
Partner							
10–15	645	95.8	28	4.2	1	Reference	
16–29	333	92.0	29	8.0	2.04	(1.07, 3.87)	0.03
30–50	40	83.3	8	16.7	2.91	(0.88, 9.61)	0.08
ADF member							
10–15	450	95.7	20	4.3	1	Reference	
16–29	215	91.9	19	8.1	1.80	(0.94, 3.48)	0.08
30–50	46	82.1	10	17.9	4.30	(1.65, 11.22)	0.003

Notes: *N* = 412 families; 749 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

As psychological distress scores increased for partners and ADF members, there was an increase in the percentage of children with at-risk prosocial scores. The relationship between ADF members' psychological distress and child at-risk prosocial scores was statistically significant only when scores on the K10 were 30 or more. For partners, however, the relationship was statistically significant when K10 scores were from 16 to 29 but not when partners scored 30 or more. Overall, higher psychological distress had a statistically significant association with problematic social behaviours in children.

The association between the partner K10, the ADF member K10 and the impact of child emotional and behavioural problems, as measured by the SDQ impact subscale for children in the abnormal (at-risk) range of behaviours (score ≥2), was examined (see Table 8.18).

Table 8.18 Partner and ADF member K10 scores examined in relation to the impact supplement scores on the SDQ

K10 score	Impact (normal <2)		Impact (abnormal ≥2)		Odds ratio	95% CI	*p*-value
	n	%	*n*	%			
Partner							
10–15	583	90.4	62	9.6	1	Reference	
16–29	249	75.5	81	24.5	3.07	(1.93, 4.89)	<0.001
30–50	24	51.1	23	48.9	6.71	(2.99, 15.03)	<0.001
ADF member							
10–15	393	87.1	58	12.9	1	Reference	
16–29	184	84.0	35	16.0	1.13	(0.70, 1.84)	0.61
30–50	35	71.4	14	28.6	2.34	(1.08, 5.08)	0.03

Notes: *N* = 394 families; 715 children. Adjusted for age (18-29, 30-39, 40-49, 50+) and sex of the ADF member. Additionally, in the partner analyses, the mental health of the ADF member was controlled for, and in the ADF member analyses, the mental health of the partner was controlled for.

There was a clear and statistically significant relationship between partners' and ADF members' psychological distress and the impact of child behaviours on the family. As the partners' psychological distress increased, children's behaviours were statistically significantly more likely to be reported as having a greater impact. This relationship was not as consistent for ADF members: only when they scored 30 or above on the K10 did children's behaviours become statistically significantly more likely to be rated as having a negative impact. The relationship between psychological distress and child impact scores was stronger between the partner and the child compared with that between the ADF member and the child.

Summary: ADF member and partner psychological distress and child outcomes

Overall, across all three measures on the SDQ higher psychological distress in partners was associated with poorer outcomes for children. Only when ADF members reported psychological distress in the highest category was this significantly associated with more negative outcomes for children.

ADF member and partner symptoms of PTSD and child health outcomes

The association between the PCL-C of the partner, the PCL-C of the ADF member and problematic emotional and behavioural health in children, as measured by the SDQ total difficulties subscale for children in the abnormal (at-risk) range of behaviours (score ≥17), was examined (see Table 8.19).

Table 8.19 Partner and ADF member PCL-C scores examined in relation to the child's total difficulties subscale of the SDQ

PCL-C score	Total difficulties (normal <17)		Total difficulties (abnormal ≥17)		Odds ratio	95% CI	*p*-value
	n	%	*n*	%			
Partner							
17–29	713	90.7	73	9.3	1	Reference	
30–49	156	23.2	47	23.2	2.64	(1.50, 4.65)	0.001
50–85	25	59.5	17	40.5	8.18	(3.29, 20.34)	<0.001
ADF member							
17–29	461	9.6	49	9.6	1	Reference	
30–49	109	17.4	23	17.4	1.71	(0.92, 3.18)	0.09
50–85	37	71.2	15	28.8	2.81	(1.33, 5.96)	0.01

Notes: *N* = 378 families; 674 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

There was a clear and statistically significant association between both the partners' and the ADF members' PTSD symptoms and child health on the total difficulties subscale of the SDQ. The relationship between higher PTSD symptoms and child behaviour problems was seen with the ADF members. This relationship was, however, not as strong as that for the partners and was statistically significant only when the ADF members scored 50 or above on the PCL-C. The partners' mental health was thus most strongly related to child behavioural health.

The association between partner PCL-C, ADF member PCL-C and problematic child social behaviours, as measured by the SDQ prosocial subscale for children in the at-risk range of behaviours (score ≤4), was also examined (see Table 8.20). At-risk prosocial behaviour refers to children displaying fewer positive social behaviours than would be expected for children of the same age.

Table 8.20 Partner and ADF member PCL-C scores examined in relation to the prosocial subscale of the SDQ

PCL-C score	Prosocial (normal >4)		Prosocial (abnormal ≤4)		Odds ratio	95% CI	*p*-value
	n	%	*n*	%			
Partner							
17–29	777	95.7	35	4.3	1	Reference	
30–49	187	89.0	23	11.0	2.22	(1.14, 4.32)	0.02
50–85	39	88.6	5	11.4	2.20	(0.47, 10.33)	0.32
ADF member							
17–29	499	95.8	22	4.2	1	Reference	
30–49	120	87.6	17	12.4	3.02	(1.52, 5.99)	0.002
50–85	48	87.3	7	12.7	2.95	(1.07, 8.16)	0.04

Notes: *N* = 380 families; 688 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

The relationship between PCL-C scores and at-risk prosocial child outcomes was less clear than that for the total difficulties subscale. A statistically significant association between partner PCL-C scores and child prosocial outcomes was observed only when PCL-C scores were from 30 to 49 but not 50 or greater. There was a statistically significant association between ADF member PCL-C scores and child prosocial outcomes, both when PCL-C scores were 30 to 49 and when they were 50 or greater, although this relationship was only marginally significant. It appears that the relationship between ADF member PCL-C scores and child prosocial outcomes is stronger than that for partner PCL-C scores.

Finally, the association between partner PCL-C, ADF member PCL-C and the impact of child emotional and behavioural problems, as measured by the SDQ impact supplement for children in the at-risk range of behaviours (score ≥2), was examined (see Table 8.21).

Table 8.21 Partner and ADF member PCL-C scores examined in relation to the impact scale of the SDQ

PCL-C score	Impact (normal <2)		Impact (abnormal ≥2)		Odds ratio	95% CI	*p*-value
	n	%	*n*	%			
Partner							
17–29	676	88.4	89	11.6	1	Reference	
30–49	143	72.2	55	27.8	2.45	(1.47, 4.07)	0.001
50–85	25	58.1	18	41.9	4.75	(1.66, 13.62)	0.004
ADF member							
17–29	428	86.5	67	13.5	1	Reference	
30–49	105	83.3	21	16.7	1.17	(0.65, 2.12)	0.60
50–85	35	68.6	16	31.4	2.24	(1.06, 4.74)	0.03

Note: *N* = 362 families; 652 children. Adjusted for age (18–29, 30–39, 40–49, 50+) and sex of the ADF member. Additionally, in the partner analyses the mental health of the ADF member was controlled for and in the ADF member analyses the mental health of the partner was controlled for.

There was a clear and statistically significant relationship between the partner's and the ADF member's PTSD symptoms and the impact of child behaviours on the family. As the partner's PTSD symptoms increased, children's behaviours were statistically significantly more likely to be reported as problematic. The relationship between higher PTSD symptoms and the impact of child behaviours was observed for ADF members, although it was not as strong as it was for the partner and was statistically significant only when ADF members scored 50 or above on the PCL-C. The partner's PTSD symptoms were thus most strongly related to the perceived impact of child problematic behaviours.

Discussion

This chapter investigates the association between ADF members' and partners' physical and mental health and the relationship between ADF members' health, partners' health and children's behavioural and emotional outcomes. Of particular interest were the potential transmissions of intergenerational health effects from the ADF member to children and whether this pathway was via the partner (the at-home parent).

ADF members' and partners' health

The majority of partners and ADF members (87 per cent) reported that they were either extremely satisfied or satisfied with their current relationship. Further, there was a high level of agreement between partners in relation to how satisfied they both were with their relationship, and there were no differences between the level of satisfaction experienced by the ADF member and their partner.

Overall, the mental health and psychological distress of ADF members and their partners were reported as being quite similar. As might be expected, however,

ADF members reported higher PTSD symptoms than their partners and also heavier drinking. An interesting outcome was that partners rated their physical health as being slightly better than did their ADF member, and this difference was statistically significant. It is possible that this finding is the result of a population response bias, whereby ADF members might have compared themselves with other physically healthy people in the Defence Force, which could have negatively skewed how they responded, whereas partners were more likely to compare themselves with the general population, consisting of the full spectrum of health presentations. It is important to note that the measure was self-reported, not an objective measure of physical health.

The data clearly demonstrate that the physical health, and particularly the psychological health, of the ADF member and partner were associated. There was no strong evidence that secondary PTSD traumatisation occurred in the sample, especially when the strictest cut–off of a PTSD diagnostic screen was used (that is, a score 50 or more on the PCL-C). This was unlike some previous studies, which found evidence of secondary traumatisation (for example, de Burgh et al. 2011), even in partners of peacekeepers (for example, Dirkzwager et al. 2005). There was, however, a strong association between high PTSD symptoms in ADF members and high PTSD symptoms in partners. This suggests that, although PTSD in an ADF member might not have been sufficient to result in secondary PTSD in a partner, the ADF member's psychological health could have compromised their partner's mental health. PTSD symptoms and psychological distress in ADF members were also associated with psychological distress and heavier alcohol use in partners. Further, heavy alcohol use in ADF members resulted in high psychological distress for partners.

Many studies have found that the partners of military personnel can have elevated levels of psychiatric illness and can experience adverse physical health (for example, Burton et al. 2009; Caspi et al. 2010; Eisen et al. 2006; Mansfield et al. 2010; O'Toole et al. 2010). This chapter demonstrates that it is probable that it was the health of the ADF member that might have been directly (or indirectly) responsible for the health of their partner. Prevention and intervention might therefore be necessary not only for the ADF member but also for their partner to avert the risk of longer term adverse mental and physical health. Research has also found that if the at–home parent receives support to help them cope well with deployment the children are more likely to do well (Andres & Moelker 2011).

Intergenerational health

The relationship between parental alcohol use and children's emotional and behavioural outcomes was not clear. In general, partners' alcohol use was not statistically significantly related to child outcomes on the SDQ. There appeared, however, to be some relationship between ADF members' alcohol use and poorer child outcomes. Heavier alcohol use in ADF members was statistically significantly more likely to be associated with greater child total difficulties and impact scores. The caveat in interpreting these findings is that there were very low numbers of people reporting heavy alcohol use, particularly among partners.

As a result, drawing strong conclusions about associations between parental alcohol use and children's emotional and behavioural outcomes is not warranted.

There was a strong and statistically significant relationship between partners' mental health, including PTSD symptoms and psychological distress, and child outcomes on the total difficulties and impact subscales of the SDQ. This relationship was stronger than the association between ADF members' PTSD symptoms and psychological distress and the child outcomes on those same two SDQ subscales.

Overall, the results suggest that there could be an intergenerational influence of parental mental health on child emotional and behavioural outcomes. The pathway of this relationship might, however, be best accounted for as going in the direction of ADF member to partner and then partner to child. Strong and direct relationships were found between the ADF member and child, but this pathway was not as strong as the pathway between the partner and the child.

Limitations

A limitation of these findings is that the partner was responsible both for reporting their own health outcomes and for completing the SDQ for their child. It is therefore possible that the stronger relationship that was generally observed between partner mental health and child outcomes could be a product of reporting bias. For example, a negative reporting bias might reveal a parent with poor psychological health reporting their child's behaviours more negatively. Studies have found that mothers with depression tend to over-report child problem behaviours when compared with non-depressed mothers (Najman et al. 2000).

There was little evidence to suggest that secondary traumatisation occurred in the sample. This finding might be the result of the level of PTSD expected in ADF members returning from Timor-Leste deployment. It is possible that in other Australian military contexts—for example, Iraq or Afghanistan—the finding related to PTSD traumatisation in partners would be different. This might warrant further investigation.

There are limitations to the conclusions that can be drawn on the basis of the data collected during the study. It is not possible to make strong statements about intergenerational transmission of health from ADF members to children, yet there is some evidence that the psychological health of an ADF member parent was strongly associated with the emotional and behavioural health of their children. Future studies would benefit from including additional physical health measures for children.

Future directions

A question that remains concerns why some ADF members nominated their partners to be contacted in order to participate in the research and others did not. There could be some bias relevant to those partners who participated in the

study when compared with those who were not allowed to be contacted. It is possible that nominated partners were more likely to be healthier and have a stable relationship. For example, some ADF members might have chosen to exclude their partner if the partner was unwell or the relationship was not a happy one.

Several factors are known to mediate the impact of conditions such as PTSD on the health of partners, among them the partner's perception of PTSD, veteran aggression, the partner's own psychopathology (for example, anxiety or depression), the number of children at home, marriage length, resilience, and communication and bonding. Future studies might benefit from exploring these variables in relation to veterans' and partners' health in order to ascertain the importance of these risk and protective factors in an Australian military context.

Partners in this study were already completing a large number of questions so that the main aims of the study could be covered. It was therefore not feasible to include additional questionnaire items so as to measure all the aforementioned factors. It is also important to bear in mind that family health (that is, functioning) can influence veterans' health. Evans et al. (2010) found that poorer family functioning predicted poorer treatment outcomes for veterans with PTSD. Maintaining the health of the ADF member's partner and family might therefore be important to ensure the member's readiness to return to duty. Maintaining partner health might also contribute to the success of any treatments the ADF member or veteran engages in to improve their health.

Secondary traumatisation in children and adolescents from military families is under-researched (Friedberg & Brelsford 2011). Properly controlled prospective longitudinal studies of sufficient sample size are required in order to determine causal links between parental military service and child outcomes and to assess the impact of military service on the triad of the serving member, the at-home parent and the child.

9 Conclusions

This report, by The University of Queensland, Centre for Military and Veterans' Health, presents data analyses that respond to the two Department of Veterans' Affairs' research aims for the Timor–Leste Family Study:

1. To determine what, if any, physical, mental, or social health impacts there are on a service member's family from the member's deployment to Timor-Leste.

2. To identify any risk and protective factors associated with any health impacts.

The research aims focus on an ADF member's family rather than the ADF member, and this is appropriate because extensive research has been done into the consequences of deployment to Timor-Leste for ADF members—see the *East Timor Health Study Project Completion Report* (McGuire et al. 2009b). That research found that Timor-Leste veterans were no more likely to screen positive for mental health problems than members of a comparison group. Veterans did, however, have slightly statistically significant lower scores on measures of mental and physical health. This distinction is important because it shows that, while there might be health differences, very few people were classified as 'ill'.

An intergenerational effect of deployment would suggest that the health of the partners and children of Timor-Leste veterans would be worse than that of a matched comparison group. But, because only small differences were found in earlier research on Timor-Leste veterans, it is reasonable to assume that any differences between Timor-Leste partners and comparison partners would be similarly small, if they were evident at all.

The findings

The health of partners

Broadly, international research into the impacts of deployment on military families has found that deployment decreases the physical and emotional wellbeing of spouses and children. Positive outcomes have also been identified, among them increased independence for spouses and closer spousal relationships. How representative international findings are of Australian military families is, however, unclear because of differences in each country's military services and social demographics.

In the Timor-Leste Family Study an ADF member's family is defined as the member, their current partner and children living with their current partner. A partner is defined as a spouse, a person in a de facto relationship or a person in a long-term relationship with the ADF member. A member's deployment to Timor-Leste is defined as any deployment to Timor-Leste with the ADF between

1999 and 2010, as recorded in the Defence Human Resources system. Although the study invited former partners of ADF members to participate, so few did that their data were excluded in order to avoid the potential for identification.

Timor-Leste and comparison partners were compared on measures of physical, mental and family health and on levels of intimate partner violence, relationship satisfaction, and the conflict created between their ADF member's military work and their family life. No statistically significant differences were found between the two partner groups on any of these measures. Importantly, the majority of the participants (between 77 and 99 per cent, depending on the measure) scored in the healthy range on all measures. This finding is positive.

More than 50 per cent of partner participants rated their health as 'excellent' or 'very good'; less than two per cent reported drinking alcohol at hazardous levels; and less than five per cent screened positively for symptoms of Posttraumatic Stress Disorder. Similarly, more than 90 per cent of partners reported that their families were functioning well and had the ability to adapt well to crisis and change. Partners also reported high levels of relationship satisfaction and low levels of relationship conflict. There was some evidence of intimate partner violence in families: almost 10 per cent of partners screened positively.

The health of children

The overall health of children was measured by investigating birth outcomes and emotional and behavioural strengths and difficulties.

A short screening measure of pregnancy outcomes was used. Birth and infertility rates did not appear to differ between the two partner groups or to differ from results found in other research conducted with Australian women.

Similarly, on parental ratings of their children's emotional and behavioural strengths and difficulties, there were no statistically significant differences between Timor-Leste and comparison families.

Because there were no statistically significant differences between the Timor-Leste and comparison families, the data for families were combined and analysed together to respond to the second research aim. This increased statistical power and the likelihood of detecting any statistically significant associations.

How does deployment affect families?

The tempo of military operations since 1999 has meant that more families have experienced multiple deployments. There is clear concern in the broader military community that multiple deployments result in poorer outcomes for families.

Almost one-third of partners in this study had been with their ADF member partner for three or more deployments. Slightly more than one-quarter of partners had, however, never experienced a deployment. Between one-third and half of partners who had experienced multiple deployments had been with their

ADF member when they deployed to Iraq or Afghanistan. Families that had experienced multiple deployments were therefore likely to have experienced deployments on warlike operations.

Multiple deployments

There was no evidence to suggest that the physical and mental health of partners varied with increasing numbers of ADF member deployments. Similarly, the overall health of the family and the partners' satisfaction with their relationship did not appear to be associated with the number of deployments.

It is possible that this lack of difference in findings reflects a 'healthy family' effect; that is, currently serving ADF members and their families who cope better with deployment are more likely to embark on future deployments. If an ADF member leaves the Defence Force or becomes medically unfit, they are no longer eligible to deploy.

In contrast with measures of health, the proportion of partners reporting the impact of the military as negative increased as the number of deployments they had experienced increased. After three deployments more than half of partners perceived the impact of the military on their relationship to be negative; this compares with about one-third of partners who had experienced either no deployments or just one deployment. Nevertheless, even after three deployments there was still a proportion (20 per cent) of partners who felt the overall impact of the military on their relationship was positive.

Partners also rated the impact of their ADF member's military commitments on their children. There was an increase in the proportion reporting the impact as negative as the number of deployments increased: after the third deployment partners were more likely to report that military commitments negatively affected their children.

Parental ratings of their child's emotional and behavioural strengths and difficulties showed some effects of multiple deployments. Children were twice as likely to be reported as having behavioural difficulties if they were from a family that had experienced two or more deployments. Similarly, parents reported lower levels of prosocial behaviours (behaviours intended to benefit another) in children in a family that had experienced four or more deployments. These differences were statistically significant and affected a little less than 10 per cent of children.

Currently deployed

The health of families can be affected in different ways, depending on where the family is in the deployment cycle (pre-deployment, deployment, sustainment, re-deployment and post-deployment—see Appendix C). Eight per cent of the partner participants responded that their ADF member was currently deployed. The physical, mental and family health of these partners was, however, no different from that of partners whose ADF member was not deployed at the time of the study.

Again, it could be that there is a 'healthy family' effect: in families that do not manage deployment well the serving member might be less likely to re-deploy. Additionally, since current deployment was not the focus of the research, there were comparatively few partners in this situation and there was insufficient statistical power to be confident about these findings.

Timor-Leste deployment

Partners' reported experience of Timor-Leste deployment was related to their health. Partners who rated Timor-Leste deployment negatively reported poorer physical and mental health, lower satisfaction with the quality of their relationship, and less family and non-family social support. The more difficult the deployment was for the partner, the poorer the reported outcomes. This suggests that the subjective experience of deployment can affect health more than objective measures such as the number of deployments experienced by the family.

The most frequently cited difficult aspects of deployment were associated with the absence of the deployed member—for example, missing them, worrying about their safety and not having them present on special occasions. There is little that can be done to prevent deployed personnel missing important family events, and there is nothing that can be done to prevent families from worrying about and missing their deployed partner or parent. Nevertheless, because outcomes for partners who felt better about deployment were more positive, influencing how families feel about deployments might affect their health.

Increasing the positive emotions relating to deployment might therefore help mitigate negative outcomes. The broader Defence community has developed at least two strategies to encourage pride and acknowledge the sacrifices families make for the military. In 2011 the National Welfare Coordination Centre started issuing to Army families an Army Family Support Badge on receipt of a family registration form. Another initiative, the 'kids' recognition medal', is not officially sanctioned but has been embraced by families. About 1,000 medals 'for perseverance on the home front' were awarded to Australian military children in time for ANZAC Day 2012 (Chudleigh 2012).

Risk and protective factors for families

As is noted, risk and protective factors can exacerbate or ameliorate effects associated with military life for partners and children. This research was cross-sectional, so it was not possible to determine the direction of the relationship between a particular risk or protective factor and a measure of health. For instance, does difficulty in coping lead to poor mental health or does poor mental health make it more difficult to cope? The study explored the relationships between family functioning, coping style, relationship quality, social support, perceived barriers to care and intimate partner violence on one hand and physical, mental and child health on the other.

Family functioning

The way family functioning was measured suggests that healthy families maintain a balance between their emotional bonding (how dependent they are upon each other) and the flexibility they have in their roles in the family. For example, if an ADF member took on all leadership roles in the family, it might be difficult for the non-deployed parent to assume these roles in the ADF member's absence. Extrapolating from this, current programs that facilitate balanced family functioning might make a positive contribution to the mental health of partners and children.

Partners reporting poorer family functioning also reported elevated symptoms of Posttraumatic Stress Disorder, higher psychological distress, worse mental health, and a high impact on child emotions and behaviours. No association was found between family functioning and physical health.

Coping styles

Two types of coping were measured: emotion-focused coping (self-distraction, substance use, self-blame) and problem-focused coping (planning, positive reframing, acceptance). High scores on emotion-focused coping were significantly associated with increased reporting of symptoms of Posttraumatic Stress Disorder, psychological distress and poorer mental health; in contrast, high scores on problem-focused coping were associated with fewer symptoms of PTSD, lower psychological distress and better mental health.

Coping strategies vary across the lifespan and most people will activate both types in response to stress (Folkman et al. 2004). Problem-focused coping strategies are considered to be most effective for controllable stressors (Dimiceli et al. 2010). One example of this is the FOCUS program being offered to US military families (Lester et al. 2011): it is customisable to participants, using a face-to-face and internet-based system to provide assessments, feedback, tailored psycho-educational materials, and referrals to sources of support (Lester et al. 2011). Evaluation data from the first two years of the program show significant improvements across all measures, including coping (Saltzman et al. 2011).

Relationship quality

Relationship quality was significantly related to mental health for partners. Greater interpersonal support (called social support) and the security and importance of the relationship (depth) were related to better scores on the mental health measure. In contrast, increased conflict in the relationship was associated with poorer mental health outcomes for the partner. This pattern also held true for children, suggesting that the quality of the parental relationship affects children. Programs and policies supporting improvements to the quality of relationships might be beneficial for all members of the family, including children.

Social support

Social support was significantly associated with mental health: partners who reported higher family and non-family support had better mental health, reported high psychological distress and positive screens for Posttraumatic Stress Disorder less frequently, and reported fewer problems for their children. Family support was more strongly associated with positive outcomes than non-family support.

Partners most often turned for help to other families, either their own extended family or other families also experiencing deployment. Programs that facilitate connection to families, such as those offering relocations during the ADF member's deployment (dependent on certain criteria), might make a positive contribution to the health of partners and children. Initiatives that connect families experiencing a deployment—such as mentoring programs or family readiness groups—might also be effective for partners. Of the formal Defence-specific supports, partners used the ADF member's unit, the Defence Community Organisation and the National Welfare Coordination Centre.

Barriers to care

Most ADF partners said they would know where to seek help for mental health problems should they require it. Their greatest concern, expressed by one in three partners, was that help might be too expensive. In line with research on veterans in the United States, those who were more likely to need mental health care (that is, who had more mental health symptoms) reported the barriers to care items more frequently.

The ADF is committed to redressing barriers to care perceived by its personnel, and Defence senior leadership has identified a communications strategy for dealing with stigma and barriers to care as one of the seven priority actions for immediate attention (http://www.defence.gov.au/health/DMH/i-MHRP.htm#11). There might be benefits if the developed communication strategy were expanded to include ADF partners as well.

Intimate partner violence

IPV was significantly associated with poorer mental health and an increased likelihood of partners screening positively for Posttraumatic Stress Disorder. For children, IPV reported by their parent was related only to lower prosocial behaviour scores. IPV is often under-reported because victims are reluctant to acknowledge their situation. The screening tool used in this study required acknowledgment of relationship conflict, not explicit violence, and has been shown to correctly classify more than 90 per cent of abused women in a validation study (Brown et al. 2000). Further investigation of the data will be required in order to evaluate whether there are any socio-demographic factors associated with positive screens for IPV and how these screens might relate to reported physical and emotional abuse.

The association between an ADF member's health and their family's health

The relationship between family members is dynamic and members' health can be interlinked (Andres & Moelker 2011). The relationship between the ADF member's health and their partner's health was explored. Additionally, the intergenerational consequences of health were explored by looking at the ADF member's and their partner's health in relation to outcomes for children.

Overall, there was a consistently strong relationship between the ADF member's physical and mental health and their partner's physical and mental health. High psychological distress in ADF members was associated with high psychological distress and alcohol use in partners; high PTSD symptoms in ADF members were associated with high psychological distress, a high range of symptoms of PTSD and high alcohol use in partners; and higher alcohol use in ADF members was associated with psychological distress and high alcohol use in partners.

Most couples (92 per cent) were satisfied or extremely satisfied with their relationship. On average, less than four per cent of couples reported being dissatisfied.

In the analysis it appeared that negative outcomes were no greater for children if both parents reported negative health compared with either parent reporting negative health. In line with the literature, however, if either parent had mental health problems, the outcomes for children were poorer.

The main finding across the three measures of child health—total difficulties, the impact of those difficulties, and reduced prosocial (helping) behaviour—was that there were statistically significant associations between both partners' and ADF members' PTSD symptoms and levels of psychological distress and poorer outcomes for children. While both parents contributed to negative outcomes, the partner's mental health was more strongly related to the child's outcomes—in particular, in the case of difficult behaviour and the impact of that behaviour. The partner was, however, more likely to be the mother and, potentially, the at-home parent. It is possible that the stronger relationship that was observed was the product of a negative reporting bias, whereby a partner's poor psychological state led them to report their child's outcomes more negatively than did partners with better mental health.

Overall, there is some suggestion that high alcohol use among ADF members had a stronger association with child impact scores than high alcohol use by the partner. These findings were not, however, clear since few partners reported high levels of drinking.

Throughout the study the impact of risk factors such as multiple deployments was apparent for children, even when the findings for partners were not statistically significant. The analysis of family systems suggests that children suffered if the ADF member had problems, but this effect is indirect. The ADF

member's health was related to partner health, which in turn has consequences for children.

Limitations

The sample frame

This study examines the impact of deployment on the physical, mental and family health of military families, using Timor-Leste deployment as an example. Timor-Leste deployments began 12 years ago, in 1999. Selecting a random sample of those who experienced deployment to Timor-Leste meant that comparatively fewer younger couples and newer members of the Defence Force were included in the study. This excluded population is likely to have newer, less established relationships and younger children on average and might have different concerns in terms of established support networks and strategies for dealing with separation. The result is that the Timor-Leste Family Study population is a biased sample of ADF members and their families.

More recently enlisted personnel might also have benefited from newer policies and procedures relating to deployment and applicable to both members and families. It was clear throughout the research process that many organisations (the Defence Community Organisation, the Veterans and Veterans Families Counselling Service, and Defence Families of Australia, for example) are committed to improving the family experience of service life. How effective these changes have been cannot be assessed by this research program.

The sample participants

Including former partners in the research was considered fundamental to understanding the consequences of military service for relationships. On the basis of recruitment to the Vietnam Veterans' Family Study (www.dva.gov.au/health_and_wellbeing/research/FamilyStudyProgram 2012), difficulty recruiting former partners was not expected and questionnaires were specifically tailored for this group.

A few former partners volunteered to participate, and more than 100 ADF members provided their former partner's contact details, but only 24 former partners chose to take part. As noted, there was a distinct risk of these partners being able to be identified from their data, so they were excluded from the analysis. The result is that there is no analysis to determine whether the health of former partners differs from that of current partners. Future research with the former partners of currently serving members of the ADF should consider a different model of participation through self-selection only.

Almost 1,000 couples were recruited to the study. Only 97 of these couples were no longer serving with the Defence Force. The contact details of ex-serving ADF members were far less accurate than those of currently serving members, and making contact with these couples was either difficult or impossible.

It would be reasonable to assume that those ADF members with health problems or whose families found deployment particularly difficult might be more likely to

leave the Defence Force and that their health outcomes are therefore under-represented in the study.

The research questions

The study focused on developing a broad picture of the health of military families. The questionnaire was long and covered many things but still did not specifically touch on some matters pertinent to families. For example, although there were questions about pregnancy outcomes, there were no questions about the physical health of children. A number of programs in Defence cater for families with special-needs children, but the concerns of these families were not covered. Similarly, the study did not specifically deal with whether dislocation for families as a result of deployment or postings affected a child's learning.

The review of the literature did not find survey instruments or questions for comparing experiences of deployment. Further, because the research focused on Timor-Leste deployment, no questions were asked about the experience of other deployments. Neither was this research able to isolate the Timor-Leste experience from other deployment experiences. Many of those who deployed to Timor-Leste have gone on to deploy to other locations. Comparison group participants might have deployed to locations other than Timor-Leste or they might never have deployed. Deployment requires that an individual be physically healthy. It is not known whether those who have never deployed have failed to do so for health, family, occupational or other reasons. The ADF Mental Health and Wellbeing Study (Hodson et al. 2011) found that deployed personnel did not report greater rates of mental disorder compared with those who had not deployed, although deployed personnel were more likely to seek care for mental health or family problems. It thus remains unclear whether or how different deployments—in particular, more recent deployments to the Middle East—have affected families. This is an area that would benefit from further research.

The literature on risk and protective factors is extensive, and it was not possible to include every plausible factor in the questionnaire. Concepts such as overall stress, using a measure such as the Holmes and Rahe stress scale (1967) (commonly known as the life events scale), or loneliness, using the UCLA Loneliness Scale (Russell et al. 1978), were not included. Although not every issue could be examined, this study does provide a foundation from which studies of more specific aspects of the impact of military life on families could be built.

Strengths

The number of study participants was very high when compared with other studies of this type. De Burgh et al. (2011) reviewed the literature published in the last decade evaluating the impact of deployments on current operations on the spouses of military personnel; 14 studies were identified. More couples (996) participated in the present study than in any of the identified studies. The present study provides a firm foundation of baseline measures and a large and rich data set that will continue to be analysed in the future.

This research constitutes the first Australian quantitative study to begin the process of measuring the impact of military service on family health. Its findings provide an evidence base to guide the development of policy and interventions. The study was strongly supported by the broader Defence community (Defence Families of Australia, Defence Community Organisation, Veterans and Veterans Families Counselling Service, and so on), who contributed to its design, ensuring that matters of relevance were included in the questionnaire. Similarly, the contributions of the DVA Scientific Advisory Committee and the Consultative Forum helped ensure the quality and applicability of the research.

Study participants came from all three Services, ex-serving personnel and Reserve families and were from every state and territory in Australia. Requests for questionnaires were also received from families who were located overseas.

A large number of other research studies were under way at the time of the Timor-Leste Family Study. An innovative design relying on data sharing (with consent) and questionnaires targeted to specific respondent groups helped to minimise the impact on an already over-surveyed Defence population. Similarly, the personal telephone follow-up encouraged participation from a broad spectrum of potential participants. For example, telephone staff often reported participants saying 'there is nothing wrong with me, so why would you want my information?' The telephone staff explained how important it was to represent the entire population and this, in turn, helped increase response rates.

The Departments of Defence and Veterans' Affairs already make significant investments in a variety of services and programs designed to support the families of current and ex-serving members of the Defence Force. The Departments' commitment to military families is evident. For instance, a number of forums have been held to discuss family matters—for example, the Centre for Military and Veteran's Health's think tank 'Readjustment to Normal' and RSL Care's Defence Community Forum 2011. Similarly, the ADF Family Covenant recognises the central role of family in an ADF member's military and civilian life.

In the current environment of multiple deployments, families provide important and valuable support to Australia's sailors, soldiers and air crew. They are integral to re-adjustment for any Defence member who deploys, particularly if they are injured, physically or mentally. The impact of military service on the family also affects an ADF member's decision to continue to serve or to resign and whether to deploy. As a result, understanding what is happening to a military family is fundamental for improving capability and retention.

Potential future directions

The data collected from participants in the Timor-Leste Family Study are both broad and rich in content. The study team is already working on further analysis of the free-text responses participants provided to both specific questions (for example, 'Please list any benefits that you gained from your partner's deployment') and the final question for all participants ('Is there anything else which you feel is relevant to this study that you would like to tell us about?')

These analyses will help define future research directed at concerns that are important to Defence families.

One criterion for including specific measures was that they were scientifically valid and, where possible, there were comparable data from the Australian population. The study team intends to compare the study data with Australian norms to see how Defence families are faring in relation to other families in the community—particularly in the areas of psychological distress, health behaviours and domestic violence. This extended analysis could also explore any differences between Defence families that might be associated with Service type (Navy, Army or Air Force) and service status (currently serving, ex-serving or Reserve).

The research design was cross-sectional and retrospective. Consequently, although responses from people at different stages of life (for example, number of children, length of marriage and length of service) were collected, the design did not have the capacity to measure changes in outcomes on the basis of stages of life. This can be done only through longitudinal research. The needs of the different 'ages and stages' was a theme strongly expressed by participants in the focus groups and interviews and also by Defence Families of Australia and other stakeholders.

The Timor-Leste deployment included both warlike and peacekeeping operations. Although there were deaths on deployment, no individual was killed in action. In contrast, there were 33 operational deaths in Afghanistan between 2002 and July 2012, and 230 ADF personnel were wounded in action in that time. This study cannot assess the influence of such a different type of deployment on families.

The environment in which Defence personnel deploy has changed. Cross-sectional studies can provide insights into only part of what is happening to families. The United States has begun the Millennium Cohort Family Study as part of the larger Millennium Cohort Study that began in 1999 (www.millenniumcohort.org 2012). This longitudinal study will follow military personnel and their families over many years and will be better placed to facilitate understanding of the changes that happen to families in a rapidly changing world environment. The measured outcomes from the Millennium Cohort Family Study and this study are similar. This presents the opportunity to compare US and Australian military families more directly.

In 1999, when the first ADF members deployed to Timor-Leste, it would have been difficult to anticipate the number of operations Australian personnel would be part of in 2012. Operations continue in Timor-Leste, Solomon Islands, Afghanistan, Iraq, elsewhere in the Middle East, Egypt and South Sudan. The ADF has responded to tsunamis, cyclones, fires and floods, and military families have supported their loved ones through these operations. There is an opportunity for Australia to develop and contribute to programs designed to redress the difficulties facing military families in the current environment and in future.

Some ways in which support for families can be strengthened and improved are suggested in this report. The positive outcomes and resilience shown by most families participating in this important research program are heartening. Many families expressed pride in the contribution they and their ADF member were making to Australia. But military service does have consequences for families, particularly for children. Recognising that many families are doing well in no way diminishes the responsibility and care owed to the families of those who are not.

Summary of research outcomes: research aim 1

Timor-Leste vs comparison		Comments
Partners—Chapter 4		
Physical health		
SF 1	No difference	89% report health as excellent, very good or good
SF-12 (Physical Health)	No difference	Average reported health is good.
Alcohol Use (AUDIT)	No difference	Approximately 1% report drinking at risky levels.
Smoking	No difference	Approximately 12% are smokers.
Mental health		
SF-12 (Mental Health)	No difference	Average mental health is in the normal range.
Psychological distress (K10)	No difference	Less than 6% report in the highest category of distress.
PTSD (PCL-C)	No difference	Less than 5% report PCL-C scores greater than 50, the cut-off for a positive screen for PTSD. Median score is 21.
Family health		
Family health (FACES-IV)	No difference	More than 90% of families are functioning well.
Relationship quality		
Support in relationship (QRI)	No difference	Most partners feel supported in their relationship. Average scores are very high—3.4/4.
Conflict in relationship (QRI)	No difference	Little conflict was reported—1.83 (range 1–4).
Depth (importance and security in relationship) (QRI)	No difference	The importance of and security in the relationship were high—average scores 3.53/4.
Intimate partner violence		
IPV (WAST)	No difference	Approximately 10% screen positively for IPV.
Children—Chapter 5		
Pregnancy outcomes	No difference	There were no differences in the number of miscarriages, birth defects or child deaths and not a large number of problems.
Child emotions and behaviour		
Difficulties (SDQ)	No difference	Approximately 12% of children were in the at-risk category.
Strengths (SDQ)	No difference	Approximately 6% of children were in the at-risk category.
Impact of behaviour (SDQ)	No difference	Approximately 13% of children were in the at-risk category.

Summary of statistically significant research outcomes: research aim 2

Health outcome	Risk or protective factors	Nature of relationship
Partners (Note that the relationships described here do not imply causation or direction.)		
Physical health (SF-12)	Intimate partner violence (Chapter 7)	There was a statistically significant association between a partner's physical health and a positive screen for IPV.
	Perception of Timor-Leste deployment (Chapter 6)	Partners who rated their Timor-Leste deployment experience as negative had statistically significantly poorer physical health.
	Emotion-focused coping (Chapter 7)	Partners who used high emotion-focused coping were statistically significantly more likely to report lower physical health.
	Problem-focused coping (Chapter 7)	Partners who used high problem-focused coping were statistically significantly more likely to report lower physical health.
	ADF member—physical health (Chapter 8)	ADF members with better physical health were statistically significantly more likely to have partners with a better view of their physical health.
Alcohol use	ADF member—alcohol use (Chapter 8)	For ADF members' who reported more risky or problematic drinking, their partners were statistically significantly more likely to report more risky or problematic drinking.
	ADF member—PTSD positive screening (Chapter 8)	Partners were statistically significantly more likely to drink in a high range when their ADF member screened positive for PTSD.
	ADF member—psychological distress (Chapter 8)	A clear, statistically significant relationship was found between the ADF members' psychological distress and partners' problematic drinking
Mental health (SF-12)	Family functioning (Chapter 7)	Partners who reported non-balanced family functioning had statistically significantly worse mental health scores.
	Quality of relationship (Chapter 7)	A statistically significant relationship was found between partners' higher mental health scores and an improved perception of the quality of the relationship.
	Intimate partner violence (Chapter 7)	There was a statistically significant association between partners reporting higher mental health scores and reporting less IPV in their relationship.
	Emotion-focused coping (Chapter 7)	Partners who used high emotion-focused coping had statistically significantly poorer mental health scores than those using low emotion-focused strategies.
Mental health (SF-12)	Social support (Chapter 7)	Partners who perceived high community support (either from family or non-family) were likely to have statistically significantly better mental health scores than partners who had low community support (either from family or non-family).
	Perception of Timor-Leste deployment (Chapter 6)	Partners who rated their experience during the Timor-Leste deployment as negative were statistically significantly more likely to have poorer mental health scores.

Health outcome	Risk or protective factors	Nature of relationship
Partners (Note that the relationships described here do not imply causation or direction.)		
Psychological distress (K10)	Family functioning (Chapter 7)	Partners who reported high psychological distress were approximately three times more likely to report their family functioning as non-balanced.
	Quality of relationship (Chapter 7)	There was a statistically significant relationship between partners scoring in the higher psychological distress category and reporting a reduction in their perceived quality of the relationship.
	Social support (Chapter 7)	Partners who perceived high community support from family were statistically significantly less likely to have high psychological distress.
	Emotion-focused coping (Chapter 7)	Partners using high emotion-focused coping styles were statistically significantly more likely to report higher levels of psychological distress.
	ADF member—alcohol use (Chapter 8)	Partners were statistically significantly more likely to report high psychological distress as their ADF members reported more risky or problematic drinking.
	ADF member—psychological distress (Chapter 8)	When there is high psychological distress in the ADF member their partner is three times more likely to have very high psychological distress themselves.
	ADF member—PTSD positive screening (PCL-C >50) (Chapter 8)	When ADF members screened positive for PTSD their partners were statistically significantly more likely to have high psychological distress.
PTSD positive screening (PCL-C>50)	Family functioning (Chapter 7)	Partners who screened positive for PTSD were four times more likely to report their family functioning as non-balanced.
	Quality of relationship (Chapter 7)	There was a statistically significant relationship between partners screening positive for PTSD and a reduction in their perceived quality of the relationship.
	Intimate partner violence (Chapter 7)	There was a statistically significant association between partners screening positive for PTSD and reporting more IPV in their relationship.
	Emotion-focused coping (Chapter 7)	Partners using high emotion-focused coping styles were statistically significantly more likely to screen positive for PTSD.
	Community support (Chapter 7)	Partners who perceived high community support (either from family or non-family) were statistically significantly less likely to screen positive for PTSD.
PTSD symptoms (PCL-C)	ADF member—PTSD symptoms (Chapter 8)	There was a strong, statistically significant relationship between the frequency and severity of PTSD symptoms in ADF members and PTSD symptoms in their partner.

Health outcome	Risk or protective factors	Nature of relationship
Partners (Note that the relationships described here do not imply causation or direction.)		
Emotion-focused coping style	Partner—psychological distress (Chapter 7)	Partners using high emotion-focused coping styles were statistically significantly more likely to report higher levels of psychological distress.
	Partner—PTSD (Chapter 7)	Partners using high emotion-focused coping styles were statistically significantly more likely to screen positive for PTSD.
	Partner—mental health (Chapter 7)	Partners who used high emotion-focused coping had statistically significantly poorer mental health scores than those using low emotion-focused strategies.
	Partner—physical health (Chapter 7)	Partners who used high emotion-focused coping were statistically significantly more likely to report lower physical health.
Problem-focused coping style	Partner—physical health (Chapter 7)	Partners who used high problem-focused coping were statistically significantly more likely to report lower physical health.
Family Functioning	Number of deployments (Chapter 6)	The odds of having non-balanced family functioning increased as the number of deployments experienced by the family increased.
Quality of relationship	Family currently experiencing deployment (Chapter 6)	Partners whose ADF member was deployed at the time of the survey reported slightly and statistically significantly less conflict in their relationship.
	Perception of Timor-Leste deployment (Chapter 6)	Partners who rated their experience of the Timor-Leste deployment as negative reported statistically significantly higher conflict and lower social support when reviewing the quality of their relationship.
Impact of military	Number of deployments (Chapter 6)	More partners rated the impact of the military as negative for their relationship as the number of deployments they experienced increased.

Health outcome	Risk or protective factors	Nature of relationship
Children (Note that the relationships described in here do not imply causation or direction.)		
Total difficulties	Number of deployments (Chapter 6)	A statistically significantly larger proportion of children whose parent had experienced two or more deployments were reported as being in the abnormal category on total difficulties.
	Quality of relationship (Chapter 7)	There was a statistically significant relationship between at-risk levels of the child's reported total difficulties and a reduction in the perceived quality of the relationship.
	Community support (family) (Chapter 7)	Children with medium and high community support from family were statistically significantly less likely to have high 'total difficulties' scores for their emotional and behavioural problems.
	ADF member—psychological distress Partner—psychological distress (Chapter 8)	There was a statistically significant relationship between the partner's and the ADF member's psychological distress and the child's 'total difficulties' scores for their emotional and behavioural problems.

Health outcome	Risk or protective factors	Nature of relationship
Children (Note that the relationships described in here do not imply causation or direction.)		
Behavioural and emotional impact on the family	Family functioning (Chapter 7)	Children in a family with non-balanced functioning were statistically significantly more likely to be in the at-risk range for any behavioural difficulties they faced having an impact on the family.
	Quality of relationship (Chapter 7)	There was a statistically significant relationship between at-risk levels of the child's reported behavioural and emotional impact on the family and a reduction in the perceived quality of the relationship.
	Family currently experiencing deployment (Chapter 6)	A statistically significantly larger proportion of children who had a parent deployed were reported as having difficulties that had an impact on their life and family.
	Community support (family) (Chapter 7)	Children with high community support from family were less likely to be reported as having at-risk levels of behavioural and emotional impact on the family.
	ADF member—psychological distress Partner—psychological distress (Chapter 8)	There was a clear and statistically significant relationship between partner's and ADF member's psychological distress and the child's behavioural and emotional impact on the family.
Prosocial behaviour	Number of deployments (Chapter 6)	Children from families that had experienced four or more deployments were more commonly reported for displaying an absence of prosocial behaviours abnormal for their age.
	Quality of relationship (Chapter 7)	There was a statistically significant relationship between partners reporting their child as having fewer prosocial behaviours and reporting less social support and more conflict in their relationship.
	Intimate partner violence (Chapter 7)	Children from families where the partner screened positive for IPV were associated with reportedly displaying fewer prosocial behaviours.
	Community support (Chapter 7)	Children with medium and high community support from family or high community support from non-family groups were statistically significantly more likely to display prosocial behaviour.
	ADF member—psychological distress Partner—psychological distress (Chapter 8)	In the case of both the partner and the ADF member, as psychological distress scores increased there was an increase in the percentage observed of children with reduced prosocial behaviours.
Partner perceived impact from military commitments	Number of deployments (Chapter 6)	There was a statistically significant relationship between the number of deployments experienced by the family and an increased likelihood that partners reported the impact of the ADF member's military commitments as negative for their children.

Appendix A Study administration

The DVA Family Study Program Scientific Advisory Committee

The role of the Scientific Advisory Committee is to provide advice on scientific matters related to the conduct of the Timor-Leste Family Study.

The committee is headed up by an Independent Scientific Adviser, Professor Bryan Rodgers, who is Professor of Family Health and Wellbeing at the Australian National University' s Australian Demographic and Social Research Institute.

Membership of the Scientific Advisory Committee is as follows:

- Dr Paul Jelfs—Australian Bureau of Statistics
- Professor Ilan Katz—Social Policy Research Unit, University of New South Wales
- Professor Michael Sawyer—University of Adelaide
- Dr Lyndall Strazdins—Australian National University
- Professor Elizabeth Waters—University of Melbourne.

The DVA Family Study Program Consultative Forum

The role of the Consultative Forum is to provide comment to the DVA on matters related to the study and consult with their respective organisations and constituents to ensure the service and ex-service communities' perspectives are provided to the study.

Contributors to the Consultative Forum were as follows:

- Major General MA Kelly AO DSC (Chair)—Repatriation Commissioner
- Mrs Julie Blackburn—Defence Families of Australia
- Mr Michael Callan—Defence Community Organisation
- Mr Geoffrey Hazel APM JP—RSL representative
- COL Stephanie Hodson PhD—Department of Defence
- Mr David Penson CSM—Australian Peacekeeper and Peacemaker Veterans' Association
- Mrs Nicole Quinn—Defence Families of Australia
- Brigadier Bill Rolfe AO (Retd)—former Repatriation Commissioner.

Appendix B Literature review

Summary

Author

Dr Eva Pietrzak

Objective

The aim of this literature review is to examine the physical, mental and social health and wellbeing of families of ADF members who have been on deployment. The potential risk and protective factors for health and wellbeing will also be examined. To achieve this task a systematic review was performed on articles published between 2007 and 2009. This review updates a previous review conducted by the Centre for Military and Veterans' Health, 'The Intergenerational Health Effects of Service in the Military – Literature Review 2007'. This review can be accessed on the Department of Veterans' Affairs website (www.dva.gov.au).

Method

Medline and Scopus databases were searched using keywords pertaining to aspects of family and military. A hand search was performed on grey literature. Studies were included if they investigated health and wellbeing outcome variables in children, spouses or families of military personnel, contained original data and were published between 2007 and 2009. The search strategy yielded a total of 37 papers. Of these, 17 studies assessed the effects in children of military personnel and 22 studies examined the effect of deployment/military in spouses. Two studies examined outcomes in both spouses and children.

Conclusions

New studies strongly indicate that wartime deployment can have adverse effects on families. Emotional wellbeing of children and spouses decreases, child maltreatment increases and traumatisation and decreased mental health of soldiers and veterans is reflected in the secondary traumatisation of wives. However, individual and social resources may intensify or ameliorate these effects, indicating that support is needed not only for military personnel, but also for their families. The finding that the mother's mental health has a stronger influence on the child than the father's has implications for interventions to improve the psychological functioning of children in traumatised families.

Introduction

A literature review for the Research Proposal for the Vietnam Veterans Family study (hereafter the 'Intergenerational Review') was completed in 2007.[1] An update of the relevant literature sourced from scientific journals and the grey literature published since the completion of this review forms a theoretical basis for this report, although the emphasis is on younger military personnel.

Methods

Search strategy

The search of MEDLINE and SCOPUS databases was conducted from June to August 2009. The search was restricted to scientific articles published between 2007 and 2009. Military Home Front, RAND Organization, DVA US and Australia websites were searched for relevant reports. A broad search strategy was used to capture all the outcomes of interest in the search. It contained only two search strings reflecting family and military aspects of the review. For the database search, the following terms were used:

Family string: pregnancy OR fetus OR foetus OR Newborn OR Infant OR child* OR adolescent OR adolescence OR family OR families OR familial OR paternal OR father* OR mother* OR maternal OR parent* OR wives OR spouses AND

Military string: military OR defence forces OR soldier OR armed forces OR army OR air force OR navy OR marines OR veteran OR veterans OR servicemen OR servicewomen OR service personnel OR deployment.

Criteria for inclusion

Articles published in English between 2007 and 2009 were included. Additional inclusion criteria were: (1) participants must be family members of military personnel; (2) outcome measures must be health and/or wellbeing; (3) research must be original; (4) research must have a quality score of 7 or greater.

Criteria for exclusion

The exclusion criteria were: (1) not meeting all of the inclusion criteria; (2) duplicates; (3) single case studies; (4) clinical discussion papers; or (5) not primary sources. Review papers were excluded, but the reference lists from these sources were assessed to ensure inclusion of all relevant primary sources.

Search results

The search strategy yielded a total of 2072 articles (Figure 1). The majority of these (2004) were rejected after examining the title and abstract against the inclusion and exclusion criteria, leaving 68 articles of potential relevance. After reading the full text of these 68 papers, an additional 33 articles were discarded. Two more articles were retained from the grey literature search. In total, 37 articles were included in this review.

Seventeen studies investigated outcomes in children of military personnel[2-18] and 22 examined outcomes in military spouses[11,17,19–38] (two studies investigated effects on both spouses and children[11,17]). The main themes were effects of deployment on child maltreatment and child mental wellbeing, child maltreatment, health and wellbeing of spouses, IPV, and secondary traumatisation of spouses of veterans with PTSD.

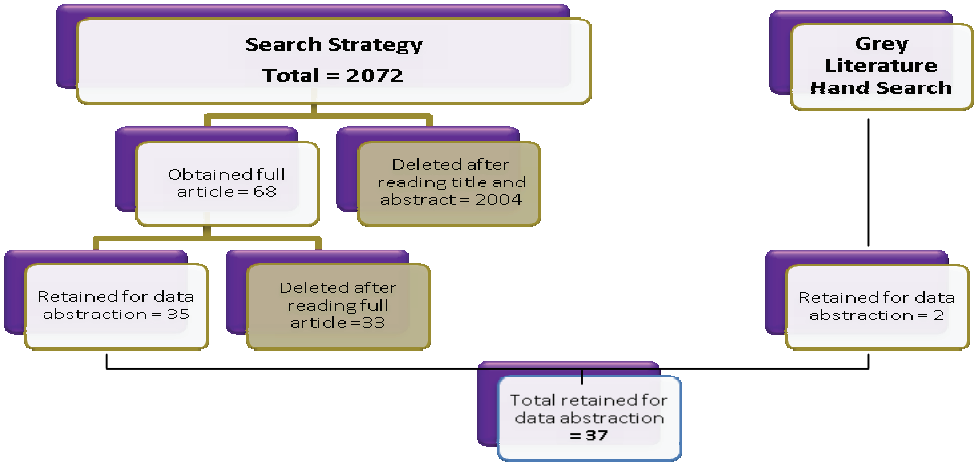


Figure B.1 Literature search result

Child outcomes

Effect of deployment on child mental health and wellbeing

There were eight studies investigating the effect of deployment on child behavioural problems, wellbeing and mental health[2–4,6,9,12,13,17]. The details of these studies are presented in Table B.1 and discussed below.

Flake et al. (2009)[6] investigated psychosocial profiles of school age children in the US to determine whether they were at an increased risk for psychosocial morbidity during parental deployment. One hundred Army spouses with a deployed service member and a child aged five to twelve years completed demographic questionnaires and standardised psychosocial health and stress measures. The majority of the parents in this study were female (86%).

A high percentage of parents (42%) reported high parental stress and one-third identified their children as being at 'high risk' for psychosocial morbidity. The most significant predictor of child psychosocial functioning during wartime deployment was parental stress. Military, family and community support mitigated family stress during periods of deployment.

Chartrand at al. (2008)[4] investigated the effect of deployment on children aged one-and-a-half to five years old in the US. This study surveyed the parents and teachers of 169 children from a large Marine base and compared the

behaviour of children whose parent was deployed with those whose parent was not deployed. The results were not significant when the total sample of children was combined. However, when the sample was stratified into younger (aged <3 years) and older (aged ≥3 years) children, a direct (unadjusted) comparison showed effects only in children older than three years. Those with a deployed parent had significantly higher internalising, externalising and total scores as reported by parents, and significantly higher externalising scores as reported by teachers.

However, upon multivariate analysis (adjusted for parental age, stress and depressive symptoms, military rank and number of children), children aged three to five years with a deployed parent had significantly higher internalising, externalising and total scores compared to same-aged children with a deployed parent and children aged younger than three years, regardless of deployment status. Children aged younger than three years had significantly lower externalising, indicating that children of different ages appear to react differently to parental deployment. In a multivariate analysis, childcare teachers observed no effects on children.

The study concluded that even very young children with a deployed parent may exhibit increased behavioural symptoms. Interestingly, an increased spectrum of symptoms were observed in children aged three to five years old, while those younger than three years old displayed less behaviour classified as 'acting out'.

Chandra et al. (2008)[3] investigated the mental wellbeing of children of deployed military personnel in a group of 192 school age children (seven to 14 years old) attending a military–sponsored summer camp in 2007. The outcomes were assessed from both child and caregiver perspectives and were stratified by deployment status and military component (active vs reserve).

Based on caregiver reports children were generally functioning well, but compared to the general population (National Health Interview Survey, 2001) had more emotional and behavioural difficulties. Numerically, active component caregivers reported more child behaviour problems than reserve component. Caregivers had more home responsibilities and often conferred more responsibilities on the child (e.g. care of siblings). Caregivers of reserve component reported slightly more of their own mental health difficulties than those of active component, cited more child disengagement, and more challenges with financial wellbeing. None of these results were statistically significant.

Based on child reports, deployment(s) of a family member influenced and somewhat altered the typical behaviour of their home caregiver. This experience varied by deployment status and service component. Children from reserve component families identified more difficulties with parental readjustment after that parent returned from a deployment. They also reported more trouble from interacting with peers and teachers who had limited understanding of their deployment experience. Children of active component personnel expressed more

anxiety about their home caregiver during deployment and cited trouble with schoolwork.

Both children and caregivers perceived the camp to be highly beneficial, and most families anticipated returning in the following year, providing support for this type of program.

Al-Turkait et al. (2007)[2] investigated the effects of a father's deployment, Posttraumatic Stress Disorder (PTSD)/combat status and a mother's characteristics on child psychosocial outcomes in a population of families of Kuwaiti military men, stratified into four groups according to their deployment status during the Gulf war (retired; active at the rear; involved in combat; prisoner of war (POW)). Validated measurement scales were used to assess the level of anxiety, depression, adaptation, deviant behaviour and family adjustment in 166 father-mother pairs and 489 children six years after the Gulf War. Additionally, both parents were assessed for PTSD.

Children's levels of anxiety, depression and abnormal behaviour scores were positively correlated with their father's deployment status and PTSD. Children of POWs had the highest abnormal scores. However, children of fathers with both PTSD and POW status did not have significantly different outcome scores than the children of the other father PTSD/combat status groups.

The mother's PTSD, anxiety, depression and social status were significantly associated with all child outcome variables. Parental age, child's age and child's level of education were significant covariates. Interestingly, although children whose parents both had PTSD had significantly higher anxiety/depression scores, the mother's anxiety was the strongest predictor of child outcome variables.

Waasdorp at al. (2007)[17] investigated the correlation of eating disorders among children and parents in a military family and the effect of deployment on the frequency of these disorders in 340 daughter-parent dyads. Eating disorders were found to be higher than in the general population for both daughters and mothers. Deployment or separation for duty of a family member increased the percentage of disordered eating behaviour in mothers, but for daughters the increase did not reach significance.

Two qualitative studies explored the effect of parental deployment on the emotional wellbeing of adolescents. **Huebner at al. (2007)**[9] interviewed 107 adolescents (aged 12-18 years old) attending a summer camp in the US. Adolescents participated in focus groups and discussed the nature of uncertainty and ambiguous loss.

The common themes included overall perceptions of uncertainty and loss (often conflicting feelings were experienced e.g. nervous and proud), boundary ambiguity (roles and responsibilities, changing routines and re-integration of parent; changes were stressful for some and positive opportunities for others), changes in mental health (reporting signs consistent with anxiety and

depression), and relationship conflict (emotional intensity, lashing out, changes in parent-child relationship and reunion/re-integration). In some respects, reunion of the deployed parent was more difficult than the absence.

Mmari (2009)[12] conducted interviews with adolescents, their stay-at home parents and school personnel in the US. Similar issues were identified as in the Huebner study, mainly: 1) an increase in externalising behaviour as a way of coping with repressed emotion; 2) changes in family roles and responsibilities; 3) changes in family routine during and after deployment; 4) deployed parent missing important events; and 5) concerns for personal safety from bullying by anti-war civilian peers. There were several strategies identified to help adolescents cope, such as maintaining a positive parental attitude during deployment, better preparation of school personnel to cope with deployment issues and peer strategies such as military student support groups.

Pesonen et al. (2007)[13] investigated the long-term consequences of parent-child separation during World War II. A randomly selected sample of Finnish people born in the Helsinki Hospital between 1934 and 1944 (N = 1,658), aged approximately 63 years at the time of the study, were assessed for depressive symptoms. The population was stratified into three groups: 1) those evacuated to temporary foster care unaccompanied by either parent (n = 410); 2) those separated from their father because of his military service (n = 744); 3) not separated (n = 504). Those separated from their father because of the father's military assignment did not differ from those who were not separated. However, former evacuees reported 20% more severe depressive symptoms and they were 1.7 more likely to have at least mild symptoms of depression compared with those who were not separated. Those that evacuated either in early infancy or at school were more strongly affected by severe depressive symptoms (23% and 30%; respectively), while those evacuated in early childhood appeared almost unaffected.

The results on the evacuees are not directly relevant to this review because military life and deployment generally does not separate children from their whole families. However, the results show that traumatic childhood events may influence depressive symptoms later on in life, and highlights an age when the absence of the mother can make children most vulnerable to long–term negative mental health effects. Wartime evacuation unaccompanied by parents could be considered a natural experiment on early separation that would disturb the attachment system of the child concerned. An insecure attachment system is one of the common vulnerability factors for depressive outcomes.

The lack of negative affect from separation with a father due to his deployment is in contradiction to the results of studies on short-time effects on children. However, this was a good quality epidemiological study with a large cohort population based on registered data; it used scales that were validated to measure depression and powerful enough to detect small changes. Therefore, it may be concluded that whatever changes are observed in young children and adolescents are of finite duration and do not last a lifetime. The results of this

study confirm that paternal separation may be considered as a less traumatic event when a relationship with the mother is sustained.

Intergenerational transfer of stress was the theme of the **Klaric et al. (2008)**[10] study of a group of veterans of the Balkan War (see Table B.2) in Bosnia and Herzegovina. The study group consisted of 154 veterans treated for war-related PTSD and a control group of 77 veterans without PTSD. The study assessed psychological problems in children as reported by their veteran fathers, using a study-designed questionnaire. Veterans with PTSD reported significantly more developmental, behavioural, and emotional problems in their children than compared to veterans without PTSD. Unfortunately, the results were not controlled for fathers' PTSD and emotional distress and it is very difficult to assess to what degree these factors influenced study results.[10]

Effect of Intimate Partner Violence (IPV) on child mental health and wellbeing

Clarke et al. (2007)[5] examined the relationship between intimate partner psychological aggression and child behavioural problems in a sample of children of Vietnam veterans (see Table B.3) in the US. The participants were 470 children aged six to 16 years old from 300 different families. Data were collected in 1990 (National Vietnam Veterans Readjustment Study, NVVRS) from Vietnam veterans and their partners when they were assessed for intimate partner aggression, psychological distress and behaviour problems in their children, using validated measurement scales.

The study found that physical or psychological aggression from a male veteran towards a female partner was significantly associated with distress in females and internalising and externalising behaviour problems in children. Further, psychological aggression experienced by the mother had adverse affects on a child's internalising and externalising behaviour problems over and above the effects of physical aggression. Exposure to psychological aggression appears to have unique direct and indirect adverse effects on children.

In an apparent mirroring of Clarke et al., **Watkins et al. (2007)**[18] examined the impacts of intimate partner aggression by female Vietnam veterans in the US and their male partners on their children's behaviour problems and investigated whether veteran and partner psychological distress were mediators of these outcomes. The sample of 100 children from 60 families came from the same source as in the Clarke study (NVVRS)[5], and the data were collected at the same time using similar measurement scales, although data on child behaviour was reported by the father.

As expected, the results indicated that physical and psychological aggression perpetrated by both the female veteran and the male partner was associated with child behaviour problems. However, when these two forms of aggression were analysed together, only physical aggression on the mothers' part and psychological aggression on the fathers' part were independent predictors of child behaviour problems. Contrary to expectations, the psychological distress of

parents did not mediate the effects of partner aggression on child behaviour problems.

The last finding was inconsistent with prior study results, examining psychological distress as a mediator of men's aggression (Clarke et al. 2007; Street et al. 2003). Differences in findings across studies may have resulted from limitations of the study (cross-sectional design, medium size sample) or methodological differences (child behaviour in the current study was reported by fathers, while mothers have typically reported on child behaviour in prior research). However, it is possible that the study is unique in showing that the impact of different forms of IPV on children depends on the gender of the perpetrator, with children being less affected by the mother's psychological abuse of the partner and father physical abuse of the partner and more affected by the mother's physical violence and the father's psychological violence.

These two studies have been included in the review because of their indirect relevance. As will be shown in the later part of the review, wartime deployment increases rates of IPV. Violence between parents, both male-to-female and female-to-male has a negative effect on child emotional wellbeing, although it remains to be seen if the results from studies on the Vietnam veteran population can be generalised to more contemporary family settings.

All studies that investigated the emotional wellbeing of children utilised a cross-sectional design and in most the outcome measures were reports, questionnaires or assessments completed by a parent (generally the mother) or a teacher. This type of study design introduces a potential confounding element of subjectiveness (e.g. under- or over-reporting). Few studies used objective outcome measures independent of potential confounding family factors, for example, the mother's state of mind (psychopathology). A stronger study design may include child-completed scales in addition to parent scales (in a prospective or cross-sectional design, but not retrospective studies) and psychological scales administered by a clinician or trained researcher. Properly controlled prospective longitudinal studies of sufficient sample size are required to establish causal links between parental military service and child outcomes and to assess the impact of military service on the triad of father, mother and child.

Earlier studies

Studies from the Intergenerational Review that investigated the effects of a deployment during the first Gulf War found that separation from a deployed parent had an adverse effect on their children's emotions and behaviour[39–41] and an inconclusive effect on their school achievements[42] (Table B.2).

Studies that examined the effects of child separation from their parent due to a military exercise or a peace-time deployment found no direct effect on a child's emotional state, behaviour or school performance. There was an indirect effect (via maternal factors) on attitude to school. There was an indication that a child's emotional state may be affected by the mother's emotional state (Table B.4).

There was a consistent finding in the Intergenerational Review showing a transfer of stress from veterans to children (11 out of 13 studies on this population). However, this effect was seen mostly in the Vietnam veteran community, especially in veterans with combat exposure and PTSD. The severity of perceived adverse effects depended on which respondent completed the questionnaires (children or parents).[43] Additionally, in child-completed measures, the father's mental health is less influential than the mother's. Thus, the effect of the fathers' PTSD on their children may be direct, or may be a reflection of the mental health of the mother. The relevance of these findings to the Timor-Leste Family Study may depend on the level of PTSD expected in the ADF members returning from this deployment.

Child maltreatment

Five new papers on child maltreatment were published between 2007 and 2009.[7,8,11,14,15] These are discussed below and summarised in Tables B.5–B.8.

The populations of investigation in these studies were exclusively US military personnel. Three studies[7,8,11] investigated child maltreatment in the Army at the national level between 2001 and 2004, and two studies examined child maltreatment at the state level, with data collected in Texas between 2000 and 2003.[14,15]

These were large cohort studies with military populations counting several thousand cases. Civilian populations used for comparison were proportionally larger (over 100,000 people). Most of the studies investigated all categories of maltreatment, namely neglect and physical, sexual or emotional abuse. The main outcome measures were presented as: 1) the total number of cases of abuse; 2) the rates of abuse: cases per 1000 children at risk; 3) types of abuse as a percentage of total cases; and 4) the risk ratio of being a victim of abuse for military children compared to civilian children.

Deployment and child abuse

The most relevant study pertaining to the effects of deployment on rates of child abuse was that of **Gibbs at al. (2007)**.[8] Gibbs investigated substantiated incidents of parental child maltreatment in 1771 families of enlisted US Army soldiers who experienced at least one combat deployment between September 2001 and December 2004. A total of 1858 parents in 1771 different families maltreated their children. The rates of child maltreatment in these families were compared between times when the soldier-parents were and were not deployed. The overall rate of child maltreatment increased during deployments by 42%, and the rates of moderate or severe maltreatment increased by 61%. When the types of maltreatment were analysed, neglect increased nearly two-fold, but physical abuse decreased by 24% and emotional abuse decreased by 69%.

Among female civilian spouses, the total rate of maltreatment during deployment was more than three times greater, child neglect was almost four times greater and the rate of physical abuse was nearly two times greater. However, these numbers have to be interpreted in relation to the types of abuse

committed by male and female parents. When the soldier was home, the percentage of physical abuse incidents increased to 19%, and the soldier committed about 59% of the incidents.

During the non-deployment period, the majority of cases of maltreatment were committed by a male soldier (54%) followed by a civilian mother (35%), but during deployment the proportion changed to 10% and 83% respectively: the rates of child maltreatment were greater during soldier deployment for female civilian parents but not male civilian parents. The rate of child abuse during deployment was greater for White mothers than for those who were Black or Hispanic. The racial composition of the abusers changed from 53% White and 47% Black or Hispanic to 69% of White and 31% of non-Whites, indicating that White mothers were more likely to maltreat children in a time of stress than Black or Hispanic mothers in this population.

The age of the perpetrator (72% were older than 25 years), substance use during the offence (15% to 48% of perpetrators used substances) and the pay grade of the soldiers (E1-E4; US$17,000 – US$28,000 per year) remained relatively similar during deployment and non-deployment periods. Male and female children were abused in almost equal proportion. Approximately 71% of the child abuse incidents reviewed in the study involved children between the ages of two and 12 years old, regardless of whether the abuse happened during deployment or while the soldier was home.

The study of **Rentz et al. (2007)**[14] analysed all substantial cases of child maltreatment collected by the National Child Abuse and Neglect Data System Agency in the state of Texas between January 2000 and June 2003. This database provides individually linked demographic data, making it possible to distinguish between civilian and military populations. Perpetrators of abuse were stratified into civilians and active duty soldiers (veterans were excluded). Military family included all active duty soldiers, with only some of them deployed. Data were collected monthly and comparisons were made between populations and longitudinally within a population. There were 147,352 cases of maltreatment reviewed, and in about 1% (n = 1,392), the affected child had a military parent.

Child maltreatment in the civilian population was relatively stable during the study period, with a rate of 8/1,000 child-years at risk. The rate was lower in military families, about 6/1,000 child-years at risk. However rates increased dramatically in August 2002. The rate ratios for the occurrence of child maltreatment in military compared to non-military families were 0.67 (33% lower) from January 2000 to September 2002 and 1.22 (22% higher) from October 2002 (the one year anniversary of the September 11 attacks) to June 2003. The longitudinal comparison within the military family population indicates that the rates for child maltreatment doubled in the months just before and after October 2002. Rates in non-military families were essentially static over the same time period.

The lack of available data directly linking any increases of child maltreatment to the deployment within the individual military family is a limitation of the study;

however, the indirect evidence is compelling. The percentage of total personnel departing to operational deployment ranged from 0.52% to 5.76%, and the percentage of total personnel returning from operational deployment ranged from 0.44% to 4.92%. The peak of maltreatment cases coincided with the peak of departures to and returns from deployment: for each 1% increase in the percentage of active duty personnel (with at least one child) who departed to or returned from an operational deployment, the rate of occurrence of child maltreatment increased by 28%.

Within military families, before October 2002 the number of military and non-military parent perpetrators per month was roughly equal. However, between October 2002 and June 2003, the largest increase in perpetration of these offences was seen among non-military parents.

Comparing child maltreatment among military and civilian populations

Rentz et al. (2007)[14] compared the rates of child abuse in a military population with those of a civilian population in a large study conducted in Texas, with data collected between January 2000 and December 2002. They found that the rates of child maltreatment in the military were significantly lower than in the civilian population for all kinds of abuse and for any particular form (neglect, physical, sexual, emotional and multiple). The rates of all cases of substantiated maltreatment for children in military families were lower than in non-military families: total abuse and neglect by 36%, physical abuse by 13%, sexual abuse by 55%, emotional abuse by 60% and multiple abuses by 54%.

These results represent a trend lasting from the early 1990s and are in agreement with data from the earlier study of McCarroll 2004[44] who compared all cases of maltreatment in the Army with those of the civilian population at the national level between 1995 and 1999. It should be noted that the data was collected in a time of peace, and the data collected in the time of mobilisation and increased deployment show a reversed trend (see the analysis of the Rentz 2007[14] study above).

Children of both sexes were maltreated in about equal proportions. Child maltreatment is age-related, with the highest rates observed for children under the age of one for both military and non-military populations, and decreased rates for older children. The highest rate of occurrence of child abuse was seen in military perpetrators aged 30 to 39 years, followed closely by 20 to 29 year olds. For non-military perpetrators, age was inversely associated with the rate of occurrence: the highest occurrence was seen in the youngest age group (18-20 year olds), and the lowest rate was found in the oldest group (aged 50 and over). Males and females were as likely to be perpetrators of child maltreatment in both populations.[14]

More detailed characteristics of the perpetrators and victims of child abuse and the economic confounders affecting rates of the child maltreatment were analysed in greater detail in the Intergenerational Review.

The majority of child abuse perpetrators were natural parents of the victim, young (in their twenties) and of low enlisted rank. Physical abuse and neglect was perpetrated by both parents on children of both sexes, but the majority of deaths were caused by young males and sexual abuse by more mature males at a higher enlisted grade.[45] The emotional abuse trends were not clear although the highest rate was observed by senior enlisted sponsors. Generally, the incidence of abuse decreased as the rank and age of the perpetrator increased.[46]

The age and sex of the victim differed according to the type of abuse. Neglect involved mainly young children of both sexes. Minor physical abuse and emotional abuse involved mainly adolescents. Major physical abuse involved children less than one year old. Sexual abuse occurred primarily among girls aged between 12 and 14 years.[46]

Perpetrators of abuse were often themselves victims of child abuse, used alcohol and drugs and had marital difficulties. The racial representation of victims and abusers generally reflected the racial composition of the military population, with a suggestion that Hispanic and Asian-Pacific Islander victims may be over-represented. However, the rates of child maltreatment for African Americans and American Indians were approximately three times lower in the Army than in the civilian population.[47]

Studies show that the rates of various types of child abuse in the military are similar to those in the civilian population, but neglect is significantly lower. The lower neglect rate may reflect the presence in each military family of at least one parent who is employed, able to function effectively within a structured environment, and able to pass literacy and aptitude/intelligence tests, who is subject to elimination from the military population upon the discovery of major mental health problems, criminal conduct, or drug and alcohol abuse. Very high rates of abuse in Black and American Indian civilian populations (25% and 21%, respectively) decreased by almost four times for these ethnicities when in the Army.[48] The beneficial effect of the Army observed in this study may be related to improvement in employment and socioeconomic status amongst underprivileged populations.

Child maltreatment by active duty soldier

The study of **Martin et al. (2007)**[11] analysed data on child abuse and spouse abuse collected by the US Army's Family Advocacy Program during a five year period (2000 to 2004). A sample of 10,864 cases of family abuse committed by Army soldiers was stratified into three groups of offenders: 1) those who perpetrated spouse offences only; 2) those who perpetrated child offences only; and 3) those who perpetrated both spouse and child offences. Results showed that the majority of substantiated family violence offenders were spouse offenders who had not committed child abuse (61%), followed by child offenders who had not committed spouse abuse (27%). Those who committed both spouse and child offences were the smallest group (12%). When the reviewers extracted the data for child abuse from combined data on domestic violence, the proportion of categories of child maltreatment (neglect: 45%;

physical abuse: 31% including 0.45% fatalities; emotional abuse: 18%; and sexual abuse: 6%) was similar to the proportions from the study by Gibbs et al.[7] Female soldiers consisted of 25% of all child-only offenders and five percent of child and spouse offenders. Ethnic composition of offenders against children only was compared with those of all Army soldiers: 49% were Caucasian (vs 58% in total Army), 40% were Black (vs 27% in total Army), and 11% were Hispanic (vs 15% in total Army). There were more child offenders among enlisted (96%) compared to the total amount of Army soldiers (86%) but fewer child offenders between the lowest pay grades (17% vs 29%).

The study of **Gibbs (2008)**[7] investigated the relationship between substance abuse and child maltreatment in the US Army during a five year period from January 2000 and December 2004. The study found a lack of association between offender substance abuse and child maltreatment recurrence, possibly because of the increased likelihood that the offender was removed from the home when substance abuse or spouse abuse was documented. Extraction of the data and calculation of all cases of child maltreatment committed by soldiers during this period revealed that although the perpetrator population in this study differed from other studies that investigated total cases of child abuse, the proportion of abuse types appears similar to that observed for military families for a similar or previous period[15,44] (for comparison with the McCarroll data see Table B.8).

Unfortunately, the only available data on child abuse is from the US, as they are the only country in the world that publishes this kind of data about their military. Therefore, it is difficult to draw a conclusion on the abuse rates and abuse types in the defence forces of other countries such as Australia. An examination of the statistics available on the internet relating to the overall populations revealed that the rates and proportions of types of maltreatment differ between the developed countries (see Table B.9). The US has the highest rate of total child abuse and the UK has the lowest. Australia has the lowest proportion of child neglect cases and the highest proportion of physical and emotional abuse cases. However, there are significant confounding factors on the final statistics such as differences in reporting systems, data collection, case assessment, and social attitudes. It is also unknown whether the trends in the Australian and UK military reflect trends in their civilian populations.

In summary, it appears that during times of peace the rates of child maltreatment in military populations are lower than in general civilian populations. This may be due to protective socio-economic factors associated with military life. However, during times of war, the rates of maltreatment among military populations increase markedly and become significantly higher than in general civilian populations, which may be due to increased stress associated with deployment.

Spouse outcomes

Of the 22 papers investigating spouse outcomes, six examined the effect of wartime deployment on the mental health and wellbeing of spouses (Table B.9),

eight assessed the secondary traumatisation of spouses of veterans with PTSD (Table B.10), four examined IPV in the veteran population (Table B.11), one was an epidemiological investigation of the health of military spouses, one returned to the subject of military spouse employment (Table B.12) and two investigated marital stability in a military population. New studies are summarised below and, where appropriate, the results of earlier studies from the Intergenerational Review are recapitulated.

Effect of wartime deployment on health and wellbeing of spouses

Three studies investigated the acceptance and stress of pregnancy and post-partum depression[28,33,38] and three studies examined the effect of deployment on the mental wellbeing of non-pregnant spouses.[17,25,35]

Robrecht et al. (2008)[33] investigated post-partum depression in a population of 410 spouses of US Naval personnel who gave birth in 2006 and were interviewed in the six weeks following birth. The average depression score (measured by the Edinburgh scale, EPDS) of women with a partner deployed during the pregnancy was 53% higher than for those with a non-deployed partner (7.36 vs 4.81, $p < 0.001$). The percentage of positive screens (score ≥12) was higher for women with a partner deployed compared to those with a non-deployed partner (25% and 11%, respectively) with an odds ratio of 2.75 ($p < 0.001$). Multivariate analysis showed that a partner's deployment during pregnancy was an independent predictor of a positive EPDS score, together with factors such as isolation, history of depression and history of deployment. The history of being on antidepressants, age and spousal deployment at the time of post-partum visit were not significant contributors.

Weis et al. (2008)[38] investigated acceptance of pregnancy between 421 pregnant spouses attending a military pre-natal clinic between 2002 and 2003. The acceptance was significantly lower for spouses of deployed personnel compared to spouses of non-deployed personnel. Community support had a positive effect on acceptance of pregnancy.

Haas et al. (2007)[28] investigated stress in 463 pregnant women attending a US Naval obstetric clinic in 2005. In pregnant spouses, husbands' deployment to a combat zone was a strong predictor of increased stress. Current deployments were rated as more stressful if their partner had been deployed during a previous pregnancy (more stressful 54.8%; less stressful 32.2%; equally stressful 13.0%). Interestingly, having two or more children at home was a stronger predictor of stress than having a partner deployed. Having a support person was protective against stress; frequency of contact with partners did not predict the reported stress level.

Steelfisher et al. (2007)[35] investigated general health, mental wellbeing and employment in a population of 798 US spouses of active-duty soldiers deployed between 2001 and 2004. The group was stratified between those whose husbands were on extended (longer than expected) duty with those not on extended duty. Controlling for demographic and deployment characteristics,

spouses who experienced extensions fared worse on an array of measures, including mental wellbeing (e.g. feelings of depression), household strains (e.g. problems with household and car maintenance) and some areas of their jobs (having to stop work or work fewer hours). There were no significant differences regarding problems pertaining to their overall health, marriage, other work issues, finances, safety and relationship with other Army families. However, spouses who experienced extensions were more likely to perceive the Army negatively during deployment.

Faber et al. (2008)[25] investigated the issue of family adjustment to deployment and reunion (boundary ambiguity) in a small, qualitative, longitudinal study. Military participants were 16 members of United States Military Reserve deployed to Iraq between February 2003 and April 2004. Their family members were ten matched spouses or significant others, four parents and two unmatched family members. All participants were interviewed seven times within the first year of the reservists' return from Iraq. During deployment, all family members experienced boundary ambiguity. Gathering information and attending a family support group provided some relief for families. After the reservists returned, couples as well as those who had experienced additional life events or losses experienced the highest levels of boundary ambiguity. However, boundary ambiguity dissipated over time as families tended to restabilise once the reservists had returned to work and a routine had been established.

In summary, spouses of military personnel that were deployed to the Gulf War had lower wellbeing and quality of life and poorer coping compared to spouses of non-deployed personnel.[35,49] The adverse effects were stronger for spouses whose husbands had been away for longer periods[49] or on extended duty.[35] Military unit culture was positively associated with coping during deployment, especially for spouses of enlisted men, as well as better adaptation following reunion.[50] Younger age, lower rank, racial minority and lower social support correlated with poorer wellbeing and lower coping of spouses during deployment.[51]

Deployment effects may depend on deployment duration. A significant level of distress was seen in over 60% of spouses during deployment to Gulf War, with one quarter of wives still showing distress at ten months after reunion.[52] In contrast, in another study, a brief deployment to Somalia had little effect on marital satisfaction during post-deployment.[53]

During short deployments, rumour-related stress was correlated with having communication problems with their deployed husband, length of deployment, soldier's rank and unit support systems. This stress appeared to be reduced by good unit leadership, good family support groups, and better emotional adaptability of spouses.[54] Data from a large national survey showed that the deployment of male soldiers to the Gulf War reduced the employment rates among their wives but did not increase post-deployment divorce rates. In

contrast, the same deployment of a female soldier left husbands' employment rates unchanged but increased post-deployment divorce rates significantly.[55]

Women appear particularly affected by spouse deployment during pregnancy. The acceptance of pregnancy was significantly lower for spouses of deployed personnel compared to spouses of non-deployed, but community support had an opposite, positive effect on the acceptance.[38] Women with a deployed partner appeared to be prone to post-partum depression.[33] The predictors of post-partum depression included: the partner's deployment during pregnancy, history of deployment, isolation and previous depression. For a pregnant spouse, her husbands' deployment to a combat zone was a strong predictor of increased stress. However, having two or more children at home was the strongest predictor of stress, and having one child at home (vs none) was also found to be predictor of stress.[28]

In conclusion, all studies indicate that the wellbeing of spouses of personnel deployed to combat zones was independently associated with both military and individual factors. The stress of spouse deployment may be ameliorated by personal and social factors that affect the family in various ways.

Veteran spouse secondary traumatisation

Renshaw et al. (2008)[32] investigated a paired population of 49 US National Guard soldiers deployed to Iraq between 2005 and 2006 and their spouses. They were assessed approximately three months after the soldiers' return. PTSD, depression and combat exposure were assessed for soldiers. Spouse perceptions were assessed on the same measures, along with stress, depression and marital functioning. The mean scores on the measures of spouses' depression and PTSD symptom severity were approximately half way between those of a previously published normative sample and the psychiatric population: they were nearly twice that of the normative sample but below the mean of psychiatric patients. Approximately 45% of the wives had a score indicative of possible clinical depression (compared to 17% in the normative sample and 70% in psychiatric unwell patients). Approximately 12% had a score indicative of PTSD.

Marital satisfaction was in the normal range for the normative population: only 17% had a score indicating marital problems (6-26% in the normative population). A trend showed that spouses' marital stress and marital satisfaction were related to spouse perception of the soldier's combat exposure. Although soldiers' symptoms of PTSD and depression were correlated with these symptoms in their spouse, marital satisfaction was not. If spouses perceived low levels of combat exposure for their husbands, their marital satisfaction suffered. The perception of high combat exposure buffered wives against marital stress. It appears that the trend is in line with common psychological phenomenon of psychiatric symptoms being more acceptable to family or society if caused by uncontrollable conditions.

Goff et al. (2007)[27] investigated relationship satisfaction levels in a convenience sample of 45 couples that included male Army soldiers who recently

returned from a military deployment to Iraq or Afghanistan and their female spouses/partners. A significant correlation was found between females' relationship satisfaction and soldiers' relationship satisfaction. Similarly, females' relationship satisfaction was correlated with soldiers' dissociation and anxiety. The results indicated that increased trauma symptoms, particularly sleep problems, dissociation, and severe sexual problems, among soldiers were predictive of low relationship satisfaction for both soldiers and their female partners.

The study by **Al-Turkait and Ohaeri (2008)**[19] measured the prevalence of PTSD in the wives of 178 Kuwait military men who were deployed to the Gulf War. Wives were split into four groups according to their husbands' combat exposure during the war: retired, active at-rear, combat or prisoner of war. The prevalence of wives' PTSD was more than twice higher in combat and prisoner of war groups than in retired or active-at-rear. The POW group had the most combat exposure and the wives were the most affected; the retired group the least. Wives' PTSD was significantly associated with the husband's combat exposure and her presence in Kuwait during the conflict, but not with the husband's PTSD status. Wives' depression and anxiety scores were the strongest predictor of their PTSD. Interestingly, the number of children was inversely correlated with the woman's anxiety and depression scores, and employment and education were not correlated. This result is opposite to what is found in western studies.

Franciskovic at al. (2007)[26] investigated 57 wives of Croatian veterans of the 1991-1995 Croatian War undergoing PTSD treatment in 2005, using a cross-sectional, non-comparative study design. Approximately 40% of these women met the complete diagnostic criteria for secondary traumatic stress, 57% met partial criteria, and only 5% had no symptoms. Individual factors such as a longer marriage and unemployment were also significant predictors of secondary stress.

Manguno-Mire et al (2007)[31] returned to the well-researched subject of the secondary traumatisation of wives of Vietnam veterans with PTSD. Many of the spouses from the study sample required mental health treatment (25% of 89 investigated). Significant predictors of spouses' stress were: perceived threat, recent mental health treatment and level of involvement with veteran. Partners' caregiver burden was predicted by partner self-efficacy, perceived threat, barriers to mental health treatment, and partner treatment engagement.

There were three additional studies published recently that investigated the transfer of stress between veterans from the 1973 Yom Kippur War and their spouses.[22,23,34] Most of the data was collected in the early 1990s. The population in these studies were prisoners of war, which have been researched extensively by several authors included in this review, and several studies covering in detail the subject of secondary traumatisation of spouses are included in the Intergenerational Review. Although the present studies investigate subtly different aspects of the subject, the main results and conclusions are similar.

However, despite the repetitive and historical aspects of these studies they demonstrate that combat exposure has a negative effect on veterans' families many years later.

In summary, studies that investigated the phenomenon of secondary traumatisation in spouses of veterans found that a husband's PTSD adversely affected a wife's mental health and wellbeing. This was observed in studies researching spouses of veterans from wars in Iraq, Afghanistan, Vietnam and Lebanon, with similar findings for spouses of peacekeepers.[56] Wives of Dutch peacekeepers with PTSD reported more sleeping and somatic problems than wives of peacekeepers without PTSD.[56] Many spouses of Vietnam veterans with PTSD required some form of mental health treatment.[31,57] Additionally, they had more caregiver burden than spouses of veterans without PTSD.[58,59]

Various individual resources were significant modifiers of the transfer of stress. Significant predictors of spouses' stress included: her depression/anxiety scores[19], longer marriage, unemployment[26], perceived threat, recent mental health treatment, level of involvement with veterans[31], caregiver burden, interpersonal violence and age.[59] Caregiver burden was predicted by partner self-efficacy, perceived threat, barriers to mental health treatment, partner engagement with treatment[31], interpersonal violence and veterans' PTSD symptoms.[59] Many wives felt that they were not receiving adequate mental health care.[57] Other studies found a correlation between the veteran's PTSD symptoms and the wife's mental wellbeing without investigating whether it had a direct or indirect impact.[60–62]

Marital satisfaction was generally lower for spouses of veterans with PTSD, including spouses of veterans from Iraq[27] and Dutch Peacekeepers[56], and in spouses of Vietnam[63–66] and Israeli veterans.[60,61,67] Not all symptoms of PTSD appear to influence marital relationships equally. A significant correlation was found between female relationship satisfaction and: 1) veterans' dissociation and anxiety scores[27]; 2) poor emotional expression[63,67]; and 3) avoidance, anger and depression.[65] However, a couples' perception of deciding factors differ. Veterans report avoidance, anger and depression as directly impacting family functioning. Their wives see anger as the only direct factor affecting family functioning, with PTSD or depression being an indirect factor for anger.[65]

The mental health of military spouses

There was one new study, by **Eaton et al. (2008)**[24], that investigated the prevalence of mental health problems, treatment needs, and barriers to care among spouses of military service members deployed to Iraq and Afghanistan.[24] In this study, 940 spouses of military service members were surveyed during a visit to a primary care military facility in 2003. The majority of spouses (78%) had husbands who were deployed to Iraq or Afghanistan at the time of the study (data on the soldiers recently returned from deployment was compiled in another arm of this survey not included in this review).

Approximately 17% of spouses reported that they were currently experiencing a moderate to severe problem relating to emotions, alcohol or family. Of the 17% experiencing a problem, 19% were interested in receiving help for these problems and 22% reported that the stress or emotional problems impacted negatively on the quality of their work or other activities. Screening tests showed that 19.5% of spouses met screening criteria for either major depression or generalized anxiety disorders (12% for depression and 17% for anxiety). Out of these, about 8% had a functional impairment due to a disease.

The data showed that spouses had similar rates of mental health problems compared to soldiers, but were more likely to seek care and were less concerned with the stigma of mental health care than were soldiers. More than 68% of those that had a positive screening test result for depression or anxiety received medical care (41% from mental care specialists, 21% from a primary physician and 8% from a pastoral counsellor). The most commonly perceived barriers to seeking care were difficulty in getting child care or time off work (43%), difficulty getting an appointment (26%), and cost (26%). A smaller proportion of people believed that receiving mental care was embarrassing (20%) or was a weakness (22%).

This is an epidemiological, non-comparative study. Although a comparison with the results from soldiers was made in the discussion, no formal analyses were performed. Additionally, it is not known whether the mental health status and behaviour of spouses of deployed military personnel were different from that of spouses of non-deployed military personnel.

The utilisation of mental health services is an under-researched area, with a dearth of studies also obvious in the Intergenerational Report. One earlier study[68] of the mental health of wives of Gulf War veterans at ten years post deployment found that there was no difference in mental health outcomes at the time of the study. Out of three earlier studies that investigated utilisation of health services by non-deployed military spouses, two found no increase in mental health problems or in the use of medical services compared to the general population[69,70] and one found a similar rate of mental health problems but a lower utilisation of mental health services.[69]

Out of two earlier studies that investigated the physical health of veterans' wives, one study[68] found that there was an increase in the frequency of skin rashes and chronic hepatitis in wives of deployed military personnel compared non-deployed, but no differences in mental health outcomes. In a Bosnia-Herzegovina study[71], families bereaved by the death of a soldier had higher blood pressure, more PTSD and a higher incidence of smoking and alcohol consumption compared to non-bereaved families, with outcomes more negative in the early bereavement period.

Intimate partner violence (IPV)

The subject of intimate partner violence (IPV) is one of the better-researched subjects in the US military. Although only four new studies were published

between 2007 and 2009[11,20,30,37], there were 25 studies included in the Intergenerational Review .

The study by **Bradley (2007)**[20] compared the rates of IPV in veteran and civilian populations. This study, although published recently, analysed data collected in 1988 during the National Survey of Families and Households.[106] The population analysed for comparison (n = 5,418) included civilians and veterans but excluded current military personnel. Contrary to expectations, a direct comparison found significantly lower levels of IPV in male veterans compared to non-veterans (23% reduction in odds). However, in an analysis controlled for relationship stressors there were no differences. Relationship stressors such as financial debt, substance abuse, quarrelling and child behavioural problems increased the risk of IPV.[20]

Teten et al. (2009)[37] investigated the patterns of IPV in a clinical sample of 184 couples seeking therapy for relationship issues. The couples were middle aged veterans and their spouses. Data was collected between 1997 and 2003. Most of the veterans were diagnosed with a mental health problem (59 with PTSD, 78 with depression). Three violence profiles were identified based on self-reports of physical violence: non-violent (44%), one-sided violence (30%), and mutually violent (26%). Profiles were determined based on the veteran's psychiatric diagnosis, the woman's age, and both partners' reports of the frequency and severity of violence. Men and women in mutually violent couples reported more verbal and physical aggression than did men or women in any other group. Rates of sexual aggression, marital satisfaction and intimacy were comparable in all three groups. The frequency and severity of verbal, physical, and sexual aggression was not gender dependent.

Lutgendorf et al. (2009)[30] investigated IPV towards pregnant women. Data was collected from 1162 women presenting to a Naval hospital for initial prenatal care between January 2007 and March 2008 (participation rate of 95%). The study showed that the rate of IPV was 14.5%. The risk of physical or emotional abuse by a partner or an important person was almost two times higher for single women compared to married women, and the risk for separated and divorced women was more than three times greater. A history of abuse was also a significant predictor of risk.

The previously mentioned study of Martin[11] analysed data on both spouse and child abuse in the Army from 2000-2004. The socio-demographic characteristics of offenders were compared with those of all Army soldiers. The family violence offenders were of similar age, were less likely to be White (44% vs 58%), more likely to be Black (42% vs 27%), similarly likely to be Hispanic or another ethnic group (14% vs 15%) and they were more likely to be enlisted rather than officers (97% vs 86%). Surprisingly, a somewhat larger percentage of the family violence offenders were in the higher salary pay grades compared to all Army soldiers, (77% in grades E4 or higher vs 71%), indicating that the relationship between violence and socio-economic status is not linear. The greatest difference between the family violence offenders and all Army soldiers related to

marital status, with 96% of the family violence offenders being married compared to 51% of all Army soldiers.

Earlier studies from the Intergenerational Review investigated various aspects of IPV such as the effect of deployment, the prevalence in the veteran and military populations, the effect of combat exposure and PTSD, the impact of IPV on family functioning and the predictive factors of IPV.

Three studies investigating whether IPV increased post deployment had conflicting results. A comparison of over 26,000 deployed and non-deployed military personnel conducted between 1990 and 1994 found small but significant increases in severe IPV in deployed families, with longer deployments associated with higher levels of IPV.[72] However, in a cohort of 1,000 US peacekeeping soldiers, post-deployment rates of IPV were similar at three to four months after return as in non-deployed soldiers from the same unit.[73] In a study of 368 wives of soldiers deployed to the Gulf War surveyed at ten months after return, deployment was not a risk factor for IPV.[74] To explain differences in these two studies, McCarroll suggested that the early post-deployment period may represent a 'honeymoon period' with IPV emerging over the course of 12 months post-deployment.[73]

Studies investigated the effect of combat exposure, mental health and PTSD on IPV found that the PTSD symptom of hyper-arousal was significantly correlated to both physical and emotional abuse and frequent heavy alcohol consumption, thus increasing rates of IPV directly and indirectly (via alcohol consumption).[75] There was a direct relationship between war zone stressors, PTSD symptom severity and the early relationship quality with mother. Indirect effects via PTSD were also found for a stressful childhood and childhood antisocial behaviour.[76] In veterans stratified by IPV perpetration status and PTSD diagnosis, both IPV and PTSD were associated with atrocity exposure, major depression, drug abuse and marital problems.[77]

In clinical samples of help-seeking veterans with PTSD, combat and atrocity exposure were significantly related to PTSD; however only PTSD severity and combat exposure were related to IPV.[78,79] A significant relationship was found between PTSD, depression and IPV, suggesting mental health problems in general are associated with IPV.[80] There was an adverse relationship between PTSD severity and parenting satisfaction, and between IPV and parenting satisfaction. PTSD symptoms of numbing and avoidance accounted for more variance in IPV than both hyper-arousal and re-experiencing symptoms.[81] Patterns of violence (male to female, female to male, and bi-directional) indicated that male to female violence is more severe and has a greater impact on family functioning.[82]

Marital stability in a general military population

Two studies were published recently[29,36], but because the datasets used were from the 1979 National Longitudinal Study of Youth[107] they have more historical value than real relevance to contemporary military personnel. These studies

investigated marital stability in the military population using objective outcome measures of marital timing[36] and divorce rates.[29] In a population stratified by race (Black vs White) and military service (active duty vs civilians), active-duty military service increased the probability of first marriage for both Whites and Blacks, but the effect was particularly strong for Black men. The authors postulated that this relationship was due to positive selectivity into the military and its associated economic stability.[36] Divorce rates from 1979-1983 were higher in the enlisted than in the civilian populations, especially among young soldiers, and the gap seems to widen after 1981.[29] However, the structure of the nuclear family has changed markedly in the three decades since the data was collected. Thus, it is difficult to assess whether the trends observed in the past would remain true today.

Military mobility and spouse employment

There was one large cross-sectional study published recently on the effects of the military on the employment of civilian spouses.[21] This study analysed over 1,100 interviews with military spouses completed between October 2002 and March 2003, during which quantitative and qualitative data were collected. Being a military spouse generally had a negative effect on spouses' work opportunities. Results showed that 66% of spouses perceived a negative effect, 33% perceived no effect and only a miniscule portion perceived a positive effect. These findings were roughly consistent across locations and services, but differed by the pay grade of the service member, which can also be considered a proxy for the age and experience of the spouse.

The negative impact on employment was more strongly perceived by spouses of senior service members (>75% of the senior officer vs <50% of junior enlisted). The causes for negative effect were primarily: 1) frequent and disruptive moves; 2) service member absence; 3) ensuing child care difficulties; 4) base location in high unemployment areas; and 5) employer bias against or stigmatisation of military spouses (perception that military spouses will leave soon and thus are only 'temporary solutions'). In their interviews, spouses offered the following suggestions to improve their employment opportunities: 1) improve child care; 2) increase awareness of existing military spouse employment programs; 3) improve civil service employment policies and processes; 4) address licensing and certification constraints; and 5) require less frequent moves (although the authors reported that the latter was offered almost jokingly). This was a large study with a randomly selected sample, a high participation rate, and data across all military services. Results of this study may be viewed as representative of the modern state of military spouse employment status in the US.

The theme of the employment status of military spouses was investigated in earlier studies presented in the Intergenerational Review (see Table B.15). There were three large-scale studies that used US national record data. Two studies[83,84] found that civilian spouses of military personnel who had migrated demonstrated a significant decline in employment and annual income, an increase in difficulty finding work and dissatisfaction with work opportunities.

Migration within mainland US was associated with greater levels of spouse employment compared to migration to overseas bases.[85] In three studies investigating spouse wellbeing and marital adjustment in their relationship to tied migration, the results were mixed and were more complex than employment status alone. Bowen[86] reported that wives' employment was not directly correlated to marital adjustment, but a significant indirect interaction was found between marital adjustment, base location, husband's rank & wife's employment status. Officers on US mainland bases whose wives worked full-time reported poorer marital adjustment.[86] Women with traditional gender roles had higher life satisfaction.[87] In a prospective study spouse employment had an initial positive impact on spouse wellbeing but over time had a negative impact.[88]

Effect of peacetime non-combat deployment on spouses

Earlier studies that assessed spouse wellbeing and family functioning during a non-war deployment found that peace-time deployment did not have a direct, negative impact on spouse wellbeing, although there was a relationship between adaptation to the deployment cycle and family resources (Table B.12).

One small longitudinal study found that adverse health outcomes, such as general health complaints, dysphoria and stress increased during deployment, although there were no pathological symptoms such as depression. Individual and family resources were contributing factors to health outcomes. For example, increased family stress (having older children) added to dysphoria. Family cohesiveness was a protective factor.[89]

Another study found that spouses of personnel deployed on an aircraft carrier from 1982-1983 sought more medical help than wives of personnel who were not deployed. However, the visits were generally for medically insignificant issues or emotional problems.[90]

In a large cross-sectional study of almost 1000 spouses of soldiers from US combat battalions, both military and non-military factors contributed significantly to life satisfaction. Specifically, only the combination of stress and perceived lack of social support had an adverse effect on spouse's wellbeing. The effect of stress on wellbeing was mitigated by social support.[91,92]

Spouse wellbeing and family functioning in general military environments

The subject of spouse wellbeing and family functioning in the families of non-deployed military personnel (general military environment), which was prominent in the Intergenerational Review, was not updated in recent studies. Therefore, the results of the earlier studies from the Intergenerational Review are summarised below and in Table B.14.

These studies assessed spouse wellbeing, family functioning and adaptation to military life, particularly mobility and the associated reduction in social supports. Generally, both military and non-military variables had an independent impact.[92–95] Spousal wellbeing was negatively correlated with a combination of stress and a perceived lack of social support[91] and positively correlated to

spouse self-efficacy, satisfaction in personal life[96] and predictability of the military partner's schedule.[96] Family adaptation was directly impacted by a positive sense of community, which in turn was positively related to unit support and negatively to number of children.[97] The family environment of Naval families was not different from civilian normal families but was better than in civilian distressed families on measures such as cohesion, expressiveness, conflict and organisation.[98] This environment was independent of the deployment cycle and command assignment and was related to demographic variables such as age, race, number of children, total time in service and total years married.[98] Deployment cycle and command assignment were related to life stress.[98]

Studies designed to assess the impact of military lifestyle, deployment or veterans' PTSD on family functioning and the health of military spouses often encounter methodological difficulties such as problems in locating and recruiting suitable population samples while avoiding recruitment bias, and lack of proper controls taking into account other factors which may impact on the health of spouses, such as the individual and other environmental influences. Generally, studies were small to medium and of cross-sectional in design. The analyses often showed a correlation between investigated variables, without demonstrating a causal effect. The existence of the effect may be ascertained from the congruence of many studies, however, the effect size is difficult to verify.

In most studies, both military and non-military variables influence spouse wellbeing and family functioning. Military factors appeared to grow in size of impact and directness of influence proportionally to soldiers' war deployment to zones, combat exposure and development of PTSD. In general military environment of non-deployed personnel, the correlation of military stress to family functioning and spouse wellbeing was indirect[97,98]: personal resources were more influential than military variables[91,92,94,96] and family environment was not different from normal civilian families and better than in distressed civilian families.[98] Similarly, peace-time deployment did not have a direct, negative impact on spouse wellbeing, although there was an inter-relation between adaptation to the deployment cycle and family resources.[89,90,99]

For spouses of personnel deployed to combat zones, both military and individual factors were independently associated with their wellbeing. In good quality, controlled studies, spouses of deployed personnel reported a lower quality of life and wellbeing and poorer coping compared to spouses of non-deployed personnel.[28,35,49] However, findings indicate that having two children at home was more stressful than having a deployed husband.[28]

The clearest results were obtained in a population of spouses of veterans diagnosed with PTSD. In most studies, veterans' stress reactions were related to various stress problems of their partners[19,56,58,60–62] and to partners' poorer perception of marital functioning.[56,60,61,63–67] However, even in this group, the various individual resources of spouses were significant modifiers of the transfer of stress.

The situation of military spouses is not unique. Secondary traumatisation of spouses was observed in civilian populations in numerous work- and life-related circumstances. Work-related separation appears as traumatic as separation due to deployment. Medical records of 4630 American spouses of frequent international business travellers show that their rate of health service utilisation for stress-related psychological disorders was three times higher.[100]

In Vietnam veterans, the PTSD symptom of hyper-arousal was significantly related to both spouse abuse and frequent heavy alcohol consumption.[75] Alcohol consumption puts a great stress on families, both military and civilian. In a cross-sectional, nationally representative sample of approximately 12,000 US women, those cohabiting with partners with alcohol problems reported worse mental and physical health outcomes than those whose partners did not have alcohol problems.[101] They were more likely to experience victimisation, injury, mood disorders and anxiety disorders, to have poorer health, experience more life stressors and have lower mental/psychological quality of life scores. A partner's alcohol problem poses diverse health threats for women that go beyond their well-documented association with domestic violence.[101]

According to the wives of veterans with PTSD, of all the symptoms only anger is a direct factor influencing marital relationship, and PTSD or depression affects family functioning only indirectly from anger.[65] PTSD is a considered a 'professional hazard' in the military. Secondary traumatisation of wives has implications for interventions to improve the psychological functioning of spouses and also their children.

Attachment B.I

Table B.1 Effect of wartime deployment on military children—new studies

Study service arm data collection	Study characteristics	Theme, outcomes, outcome measurement tools	Results
Flake 2009[6] Army Data collection-recent, but particulars not given	Design: Cross-sectional non-comparative. Population: Army spouses with a deployed service member and a child aged 5-12 years. Sample selection: convenience. *N* = 101 families, Appraisal score = 9	Effect of wartime military deployments on the behaviour of young children in military families. Outcome: behavioural symptoms in children and parental stress in stay at home spouse Outcome Measures (Validated sales):Paediatric Symptom Checklist, Parenting Stress Index Perceived Stress Scale	• 32% of children had scores indicative of 'high risk' for psychosocial morbidity • 42% of parents reported high parenting stress • Parenting stress increased child' psychosocial symptoms (odds ratio 7.41, $p < 0.01$), while social support of parents and their higher education level decreased it. Military rank, child gender, child age, and race or ethnic background did not have significant effects.
Chartrand 2008[4] Navy May-Dec 2007	Design: Cross-sectional survey. Population: Parents of children aged 1.5 to 5 years from childcare centres on a large Marine base. Sample selection: all eligible. *N* = 169 families, 73% participation rate, 33% children with a deployed parent, Children aged<3 y, *n* = 73 Children aged ≥3 y, *n* = 96 Appraisal score = 11	Effect of wartime military deployments on the behaviour of very young children in military families. Outcome: Changes in behavioural symptoms: mean externalising, internalising, and total symptom scores. Outcome Measures: Child Behaviour Checklist (CBCL) (1.5-5 years), CBCL–Teacher Report Form (TRF) (1.5-5 years).	• For the total sample of children the results did not reach significance. • In sample was stratified into younger (aged ≤3 years) and older (aged ≥3 years) children, in unadjusted bi-variate analysis, effects were observed only in children 3-5 years. Those with a deployed parent had significantly higher internalising, externalising and total scores as reported by parents (on CBCL tests) and child carers (on TRF tests) • In multi-variate analysis adjusted for parental age, stress and depressive symptoms, military rank and number of children, children aged 3-5 years with a deployed parent had significantly higher internalising, externalising and total scores as reported by parents. • Children younger than 3 years had significantly lower externalising and total scores as reported by parents. • No effects observed by childcare teachers. • Parents with children aged 3 years or older and a deployed spouse had significantly higher depression

Study service arm data collection	Study characteristics	Theme, outcomes, outcome measurement tools	Results
Chandra et al 2008[3]	Design: Cross-sectional survey Population: Children of deployed attending a free a summer camp, aged 7-14 and their caregivers, Data collected in 2007 Sample selection: all available from 5 camps, response rate 99% *N* = 192 families in 5 camps Appraisal score = 10	Effect of deployment on school age children from their caregivers perspective Outcomes: Child and caregiver perceptions of emotional problems and functioning Potential differences of effect in active versus reserve military children Outcome measures: children and caregivers filled survey using validated scales for: Strengths and Difficulties, Anxiety, Everyday Stress, Peer Functioning, Family Functioning, Coping and Physical and Mental Health	Caregiver Perspective: 1. Children were generally functioning well 2. Child emotional and behavioural difficulties were higher than in the general population (National Health Interview Survey, 2001). 3. Active component caregivers reported had more child behavioural problems than reserve component. Caregivers had more home responsibilities and often conferred more responsibilities on the child (e.g., care of siblings). 4. Caregivers of reserve component reported slightly more of their own mental health difficulties than spouses of active component, cited more child disengagement, and more challenges with financial wellbeing. Child Perspective: Children reported that deployment affected behaviour of their home stay-at-home parent. This experience varied by deployment status and service component: 1. Children of active component personnel expressed more anxieties about their home caregiver and reported trouble with schoolwork. 2. Children from reserve component families identified • more difficulties with deployed parent readjustment after return • more trouble interacting with peers and teachers, who had limited understanding of their deployment experience. These results were numerically but not statistically different.

Study service arm data collection	Study characteristics	Theme, outcomes, outcome measurement tools	Results
Huebner (2007)[9] All military services including National Guard and reservist	Design: qualitative, Population: adolescents (12-18 years) attending a free, military-sponsored camp, all had a deployed parent, mostly to Iraq/Afghanistan, all services including National Guard and reservist *N* = 107 Appraisal score = 7	Effects of parent's deployment, Outcomes: perception of emotional wellbeing. Outcome measures: semi-structured interviews in focus groups	The main issues raised by youths were perceptions of uncertainty and loss, boundary ambiguity, changes in mental health, and relationship conflict. • 53 expressed feelings of uncertainty and loss in negative terms, • 60 discusses boundary ambiguity in terms of their changed roles when parent was deployed and upon their return • 34 reported negative changes in their mental wellbeing, with symptoms including with depressive moods, sleeping and eating problems or anxiety • 35 reported changed family emotional intensity • 27 reported lashing out as a way of coping with stress • some reported changes in relationship with stay-at-home parent, mainly mother, associated with her deployment-related distress • 42 who experienced reunions mentioned difficulties of reintegrating formerly absent parent back to the family.

Study service arm data collection	Study characteristics	Theme, outcomes, outcome measurement tools	Results
Mmari 2009[12] All military services.	Design: Qualitative, Population: adolescents (12-18 years), stay-at-home parents and teachers from 8 military schools, most children had a parent deployed to Iraq/Afghanistan. *N* = 98 (39 students, 24 parents and 35 school personnel), organised into focus groups Appraisal score = 5	Effects of parent's deployment on adolescents Outcomes: perceptions of emotional wellbeing. Outcome measures: semi-structured interviews in focus groups	The main issues related to the impact of deployment on lives of adolescents and their families were: • Effect on health and wellbeing, mainly increase in externalising behaviour as a way of coping with repressed emotion • Changing family roles and responsibilities • Concerns for personal safety from bullying by anti-war civilian peers • Changes in family routine during and after deployment The following strategies to help adolescent cope were identified: • Keeping positive parental attitude during deployment • Prepare schools and counsellors to cope with deployment problems • Peer strategies – military student support groups • Negative effect of media (switch off news when children at home)
Pesonen 2007[13] Finnish soldiers during World War II.	Design: Cross-sectional Population: Fins born in Helsinki Hospital between 1934 and 1944, average age 63 years at the time of data collection in 2001. Sample selection: random from register data *N* = 1,658 Three subgroups: Evacuees to a temporary foster care separated from both parent (*n* = 410), Separated from soldier father because of his military service (*n* = 744) Not separated (*n* = 504). Appraisal score = 11	Long-term consequences of parent-child separation during World War II. Outcomes: depressive symptoms Outcome measures: Validated depression scales	Those separated from their father because of the father's military assignment did not differ from those who were not separated. However, former evacuees reported 20% more severe depressive symptoms and they were 1.7 more likely to have at least mild symptoms of depression compared with those who were not separated. Those that evacuated either in early infancy or at school were more strongly affected (23% and 30% more severe depressive symptoms), while those evacuated in early childhood appeared almost unaffected.

Study service arm data collection	Study characteristics	Theme, outcomes, outcome measurement tools	Results
Al-Turkait[2]	Design: Cross-sectional, comparative Population: four groups of Kuwaiti military men, retired; an active at the rear, involved in combat, POW. Sample selection: eligible veterans *N* = 166 father-mother pairs, 489 children (response rate not provided) Appraisal score = 11	Effects of father's deployment, PTSD/combat status and mother's characteristics on child psychosocial outcomes. Outcomes: severity of anxiety, depression, deviant behaviour and family adjustment. Outcome Measures: Validated scales for anxiety, depression, deviant behaviour and family adjustment.	• Children' levels of anxiety, depression and abnormal behaviour scores were positively correlated with their father deployment status and PTSD. • Children of POWs had the highest abnormal scores. • Children of fathers with both PTSD and POW status did not have higher scores than the other father PTSD/combat status groups. • Mother's PTSD, anxiety, depression and social status were significantly associated with all the child outcome variables. • Mother's mental health was a stronger predictor of child outcome variables than father's mental health. • Parental age, child's age and child's level of education were significant covariates.
Waasdorp 2008[17]	Design: Cross-sectional survey. Population: military family daughter-parent dyads attending primary Naval Medical Centre between Aug 2002 and Feb 2004. Sample selection: all eligible. 85% participation rate) *N* = 340 daughter-parent dyads Appraisal score = 9	Correlation of eating disorder in children and parents and the effect of deployment on the frequency of these disorders Outcome: frequency of disordered eating habits Outcome measures: study designed questionnaire	• Eating disorders are higher than in general population both for daughters and mothers. • Deployment or separation for duty of a family member increased the percentage of disordered eating behaviour in mothers.
Pisano 1996 US[42]	Design: prospective, comparative Population: Grade 7 students (age 13) from school at military base at Fort Brags during 1990-1991. Some parents deployed in Desert Storm in 1991. *N* = 158, Fathers: deployed *n* = 57, *n*/deployed *n* = 25 Mothers: deployed *n* = 45, *n*/deployed *n* = 83	Effect of Separation from father on: Outcome: School performance (reading, writing, math) Outcome measures: School records and parent-administered questionnaires	• Adverse for reading in girls, but • no difference for writing and math, • or for boys.

Study service arm data collection	Study characteristics	Theme, outcomes, outcome measurement tools	Results
Kelley 1994 US[40]	Design: prospective, interrupted time series Population: Children age 5-13 years with fathers deployed for 6-7 month during 1989-91. *N* = 61 Mother-children dyads. Fathers: Peacetime deployment in Mediterranean *n* = 47 War Navy deployment during Gulf war *n* = 14.	Effect of peace-time vs war-time Separation on: Outcome: Emotional and behavioural problems Outcome measures: Mother-administered questionnaires.	• Adverse effect of deployment on child behaviour and family. • War deployment has stronger effect than routine deployment.
Birghenheier 1993[39]	Design: retrospective, comparative Population: Children age 6-15 of active duty soldiers, some deployed to Gulf war. *N* = 57, 3 groups: no separation, mother absent, father absent.	Effect of Separation (mother vs father vs no separation) on: Outcome: Behavioural problems and social competence Outcome measures: Guardian-filled questionnaire	• Mental state, behaviour and emotion adversely affected by absence of either parents, • Mother and father absence affects behaviour differently
Rosen 1993 US[41]	Design: Cross-sectional, non-comparative Population: Children age 1-18 of fathers deployed during Gulf war. Only first and second child analysed. *N* = 1601	Effect of Separation from father and some family factors on: Outcome: Child emotions and behaviour Outcome measures: Mother-administered questionnaires:	• Deployment causes feeling of increased sadness. • More serious problems are correlated with mother', sibling's and child's own history factors.

Table B.2 Effect of intimate partner violence on children

Study	Aim/theme, population, stressors, outcomes	Study characteristics, outcome measures	Results
Clarke 2007[5]	**Theme**: Impact of IPV by male Vietnam veterans on their children **Population**: Vietnam veterans with children and their female partners. Sample selection: from NVVRS (1990) **Outcome**: mather-reported behavioural symptoms in children, psychological distress	Design: Cross-sectional non-comparative. *N* = 300 mother-father dyads and 470 children Outcome Measures (Validated sales): • Conflict Tactics Scale for aggression, • Demoralisation subscale for psychological distress • Child Behaviour Checklist Appraisal score = 9	• Psychological aggression was correlated with physical aggression. • Both forms of aggression were correlated with maternal distress and both internalising and externalising child behaviour problems. • Maternal distress was associated with both forms of child behaviour problems. • In multivariate analysis, psychological aggression and maternal distress were independent predictors of internalising behaviour but only maternal distress was independent predictor of externalising behaviour. • This pattern of findings provides partial support for the hypothesis that maternal distress mediates the association between aggression exposure and child behaviour problems.

Study	Aim/theme, population, stressors, outcomes	Study characteristics, outcome measures	Results
Watkins 2007[18]	**Theme**: Impact of IPV by female Vietnam veterans and their male partners on their children **Population**: female Vietnam veterans with children and their male partners. Sample selection: from NVVRS (1990) **Outcome**: father-reported behavioural symptoms in children, psychological distress	Design: Cross-sectional non-comparative. *N* = 60 mother-father dyads and 100 children Outcome Measures (Validated sales): • Conflict Tactics Scale for aggression, • Demoralisation subscale for psychological distress • Child behaviour Checklist Appraisal score = 9	• 15% of male partners of female Vietnam vets reported physical aggression and 73% psychological aggression • Both physical and psychological aggression perpetrated by either the female veteran or the male partner was associated with child behaviour problems. • In multivariate analysis, only physical aggression on mothers' part and psychological on fathers' part was an independent predictor of child behaviour problems. • Effects of IPV on child behaviour problems were not mediated by psychological distress of either parent

Table B.3 Transfer of stress and effects of parent PTSD on children wellbeing

Study	Aim/theme, population, stressors, outcomes	Study characteristics, outcome measures	Results
Klaric 2008[10]	Theme: Effect of father war-related PTSD on psychological problems in children. Population: veterans of 1991-5 Croatian war, undergoing treatment for PTSD and veterans without PTSD Sample selection: hospital records and snowballing for controls Outcome: father-reported behavioural symptoms in children.	Design: Cross-sectional comparative. *N* = 231(154 with PTSD and 77 without) Outcome Measures: Validated scales for veteran's data and study designed questionnaire for measuring child's problems: Appraisal score = 8	Veterans with PTSD reported significantly more problems in their children compared with veterans without PTSD. Odds ratios (with 95% CI) for reporting these problems were: • Developmental: 2.37(1.51-3.73), • Behavioural 3.92(1.53-10.03), • Emotional problems 17.74 (2.40-131.10).

Table B.4 Effects of peacetime deployment on military children—earlier studies

Study ID	Study design, population and size	Stressors, outcomes, outcome measurement tools:	Results
Thompson 1998 US[102]	Design: Prospective, interrupted time series Population: Students age 5-12, attending airbase public school in Arizona, US. Characteristics of population: number of separations 2-6; average duration of separation 3-4 months; Military father-76% *N* = 42	Effect of separation with father due to duty assignment on • School performance • Emotional state Using: child, parent and teacher-administered questionnaires.	No effect.
Hiew 1992 Canada[103]	Design: Cross-sectional, uncontrolled Students age 5-12 with deployed father. Canada *N* = 66	Effect of separation with father due to exercise or deployment overseas on: • Attitude to school • Coping behaviour at home and in school Using: child, mother and teacher-administered questionnaires.	Indirectly adverse. • No direct effect of separation • Adverse effect of maternal factors • Mothers perceived lack of support is related to father's absence.
Pedersen 1966 US[104]	Design: Cross-sectional, controlled Population: Two groups of male, Caucasian children age 11-15 of military parents. Disturbed group attended outpatient Psychology Service Controls: age and demographic matched, with no problems reported by parents or school. *N* = 57	Effect of separation with father and father's and mother's personality on • Childs disturbed behaviour Using: mother, father and child-administered questionnaires	• No effect. • Mother's personality has stronger effect than father's or his presence.

Table B.5 Effect of deployment on child maltreatment

Study: Gibbs 2007[8]				
Service arm, Time of data collection: Army, Sep 2001-Dec 2004				
Population: 1,858 parents from 1,771 families of enlisted US Army soldiers with at least one case of child maltreatment reported and with at least one combat deployment period. Appraisal score = 11				
Cases of maltreatment	**During deployment**	**During non-deployment**	**RR (95% CI) Adjusted by the no. of child days at risk**	**% change**
	N (%)	*N* (%)		
Total incidents	942	2392		
Severity of maltreatment				
Moderate or severe	638 (67.7)	1421 (59.4)	1.61 (1.45-1.77)	Up 61%
Mild	304 (32.3)	971 (40.6)	1.15 (0.99-1.30)	NS
Type of maltreatment				
Neglect	761 (80.8)	1407 (58.8)	1.95 (1.77-2.14)	Up 95%
Physical abuse	97 (10.3)	451 (18.9)	0.76 (0.58-0.93)	Down 24%
Emotional abuse	28 (3.0)	340 (14.2)	0.31 (0.19-0.43)	Down 69%
Sexual abuse	18 (1.9)	60 (2.5)	1.07 (0.47-1.66)	NS
≥1 type	38 (4.0)	134 (5.6)	1.06 (0.66-1.46)	NS
Characteristic of offender				
Civilian				
Female	783 (83.1)	832 (34.8)	3.33 (2.98-3.67)	Up ≥3 times
Male	54 (5.7)	155 (6.5)	1.36 (0.90-1.82)	NS
Soldier				
Female	7 (0.7)	107 (4.5)	0.31 (0.06-0.55)	Down 69%
Male	98 (10.4)	1298 (54.3)	0.27 (0.21-0.32)	Down 73%

Study: Rentz 2007[14]	
Service arm, Time of data collection: All military, Texas, Jan 2000-June 2003	
Population: 1,392 substantiated cases reported to NCANDS in state of Texas, committed by active duty soldiers (veterans were excluded). Appraisal score = 11	
Rate Ratio of total abuse in the military before 2002 and after 2002	RR = 2.15

Table B.6 Comparison of child maltreatment in military and civilian populations

Study ID **service arm** **data collection**	**Population**	**Outcomes**			
		Type of abuse	**Military**	**Civilians**	**RR (military/civilian)**
Rentz 2008[15] † All military, Texas, Jan 2000-Dec 2002 Retrospective review of records	Total substantiated cases reported to NCANDS (National Child Abuse and Neglect Data System) in state of Texas, individually linked to demographic data. Abusers were stratified into civilians and active duty soldiers (veterans were excluded). Data were collected monthly. *N* = 137,626, Appraisal score = 11		*N* (%), Rate	*N* (%), Rate	
		Total	1,081 (100%), 5.1	136,545 (100%), 7.9	0.64*
		Neglect	575 (53%), 2.7	73,232 (54%), 4.2	0.64*
		Physical	317 (29%), 1.5	29,393 (21%), 1.7	0.87*
		Sexual	92 (8.5%), 0.4	16,484 (12%), 0.95	0.45*
		Emotional	13 (1.2%), 0.1	2,630 (2%), 0.15	0.40*
		Multiple	84 (8%), 0.4	14,806 (11%), 0.86	0.46*
Rentz 2007[14] † All military, Texas, Jan 2000-June 2003	As above, but longer data collection period *N* = 147,352, Appraisal score = 11	Total	*N* = 1,392 Rate before 2002 ≈5	*N* = 145,960 Rate before 2002 ≈8	Before 2002 = 0.67 After 2002 = 1.22RR
McCarroll 2004[44] Army 1995-1999, Retrospective review of records	Military: total substantiated cases reported to Army Family Advocacy Central Registry Civilian: Total national data collected by the Children's Bureau of the US Department of Health and Human Services (2001) Appraisal score = 11		Rate	Rate	
		Total, 1996	7.1	14.7	*0.48‡*
		Total, 1999	6.0	11.8	*0.51‡*
		Neglect	3.1	6.9	*0.45‡*
		Physical	2.0	2.5	*0.8‡*
		Sexual	0.8	1.3	*0.62‡*
		Emotional	1.0	0.9	*1.1‡*

†These two papers cover different aspects of the same study. Although Rentz 2007 paper was published earlier, it covers data collected for a longer time than Rentz 2008. *$p < 0.05$, *‡Calculated by the reviewer*

Table B.7 Child abuse by active duty soldier compared with those committed by any member of the family

Study ID service arm data collection	Type of abuse	Outcomes: Total numbers,% of total cases, rates
Gibbs 2008	Year	2000-2004
Army, 5 year period, Jan 2000-Dec 2004	Total cases	3,959 (*N*)
Population: abuse by active duty soldier only, not by any parent in the military family. Appraisal score = 11	All Physical	34%
	Severe	5%
	Mild/moderate	28%
	All Emotional	20%
	Severe	2%
	Mild/moderate	17%
	All Neglect	48%
	Severe	5%
	Mild/moderate	43%
	Sexual	8%
McCarroll 1999[47] Army, 1997	Year	1997
	Total cases (*N*)	3,334
	Major Physical	5%
	Minor Physical	31%
	All Physical	36%
	Sexual	12%
	Emotional	19%
	Neglect	42%

Table B.8 Child abuse in civilian populations of developed countries

Type of abuse	US 2003[a]	England 2002[c]	Australia 2002-3[b]
Neglect	61%	39%	28%
Physical abuse	19%	17%	28%
Sexual abuse	10%	11%	10%
Emotional abuse	5%	18%	34%
Multiple/other	19%	16%	
Number of total victims	787,156	25,700	40,416
Rate per 1000	12.4	2.7[d]	7.2[e]
Substantiation rate	28%	12%[f]	20%

[a] http://ndas.cwla.org/include/PDF/ChildAbuseNeglect_Final_IB.PDF
[b] http://www.aifs.gov.au/nch/pubs/sheets/rs1/rs1.html
[c] http://www.statistics.gov.uk/StatBase/Expodata/Spreadsheets/D7410.xls
[d] http://www.scotland.gov.uk/Publications/2003/05/17127/21831
[e] http://www.socialreport.msd.govt.nz/2004/safety/child-abuse-neglect.html
[f] http://www.northamptonshire.gov.uk/NR/rdonlyres/3C6B6A8E-1E3C-4D13-870D-A7FA37F85164/0/PublicHealthAnnualReport200405DaventrySouthNorthantsPCT.pdf

Table B.9 Effects of wartime deployment on spouses

Study ID	Population	Outcomes, measurement tools	Results
Robrecht 2008[33]	US. Spouses of Navy personnel attending a Naval Medical Clinic, measured for Post-Partum Depression in 6 weeks following birth, during Feb and Nov 2006 period. Design: review of records (charts of 6-week postpartum visits), comparative (deployed vs non-deployed) *N* = 410 (out of 450 screened) Quality = 10	Post-Partum Depression Validated questionnaire	• The average depression score of women with partner deployed during the pregnancy was 53% higher than for those with non-deployed partner (7.36 vs 4.81, $p < 0.001$). • The percentages of positive screens (score ≥12) for women with partner deployed and non-deployed during the pregnancy were 25% and 11%, respectively with an OR of 2.75 ($p < 0.001$). • Partner's deployment during pregnancy was independent predictor of a positive EPDS score ($p < 0.005$).
Haas 2007[28]	US Pregnant women attending a naval obstetric clinic in 2005. 27% of women were on active-duty. 73% of partner's deployment was to combat areas. Design: cross-sectional, comparative (deployed vs non-deployed) *N* = 463 Quality = 11	Reported level of stress Study-designed questionnaires	• More partners of deployed military members reported increased level of stress than those of non-deployed • Blood pressure was not increased • Strongest predictors of self-reported level of stress were (in a descending order): • Active duty status (compared with having dependents) • Two or more children at home (vs none) • Partner deployed • One child at home (vs none)
Weis 2008	US Pregnant spouses attending military pre-natal clinic in 2002-3, surveyed in each semester of pregnancy. Design: prospective, interrupted time series, comparative (86 deployed, 335 non-deployed) *N* = 421 Quality = 7	Acceptance of pregnancy Questionnaire	• Pregnant spouses of deployed personnel had higher conflict for accepting pregnancy than those of non-deployed. • Community support had a positive effect on pregnancy acceptance.

Study ID	Population	Outcomes, measurement tools	Results
SteelFisher 2008[35]	US Spouses of active-duty soldiers deployed at some time between 9/11/2001 and 2004, stratified into those with extended duty (longer than expected) and non-extended. Response rate 56% Design: cross-sectional, comparative (Extended vs not Extended) *N* = 798, Quality = 10	General health, mental wellbeing, employment Study-designed questionnaires	Spouses with husbands on extended deployment fared worse on: • mental wellbeing (more feelings of depression, anxiety, loneliness), • some areas of employment (more had to stop work or to work fewer hours), • household strains (more problems child care and car maintenance), • more had negative perception of the Army. General health, marriage, other work issues, finances, relationships with Army families and safety were not affected. Variables controlled for demographic and deployment characteristics.
Waasdorp 2008[17]	US military family daughter-parent dyads attending primary Naval Medical Centre between Aug 2002 and Feb 2004. Sample selection: all eligible. Design: Cross-sectional survey. *N* = 340 daughter-parent dyads 85% participation rate) Quality = 7	Disordered eating behaviour Questionnaire	Disordered eating behaviour in military mothers is more frequent in those with deployment family member (34%, 23 out of 67), compared to all surveyed mothers (22%, 75 out of 340)
Faber 2008[25]	US.M embers of US military reserve deployed to Iraq during Feb 2003 - Apr 2004 and their families, including 10 matched spouses, four matched parents and 2 unmatched family members. Design: qualitative longitudinal (7 waves of interviews within the 1st year of return). *N* = 34, Quality = 7	Boundary ambiguity (family adjustment to deployment and reunion) Semi-structured questionnaire	During deployment, all family members experienced boundary ambiguity. Gathering information and attending a family support group provided some relief for families. After the reservists returned, couples as well as those who had experienced additional life events or losses experienced the highest levels of boundary ambiguity. However, this boundary ambiguity dissipated over time, as families tended to restabilise once the reservists had returned to work and a routine had been established.

Study ID	Population	Outcomes, measurement tools	Results
Everson 2006[49]	US Spouses of deployed to Gulf War. Random sample 25% response rate. Design: cross-sectional, comparative (deployed vs non-deployed) *N* = 205 Quality = 11	Coping, wellbeing, quality of life, appraisal of stress. Validated questionnaires	• Family stress, well being, sense of coherence and quality of life (QOL) were all worse for the deployed compared to non-deployed groups. • All variables but QOL were worse at >6 months than at <6months. • Parenting stress, family stress, family coping, well being, sense of coherence were significantly related to QOL. • Parenting and family stress were the most significant predictors of QOL for >6month deployment group.
Pittman 2004[50]	US Civilian wives of deployed soldiers at least 1 month - Desert Storm. Random sample. Design: cross-sectional, non-comparative *N* = 1064, Quality = 9	Adaptation during post-deployment period Study developed questionnaires	• Family experiences related to the deployment impacted on family adaptation to the stressors of army life directly and indirectly. • Satisfaction with services during deployment affected post-deployment adaptation to military stress. • Adaptation was mediated via perceived unit culture.
Schumm 2001[54]	US Spouses of soldiers deployed to Somalia in 1992-3. Response rate 45% Retrospective, non-comparative *N* = 478 Study quality = 7	Stressfulness of rumours Study-designed questionnaires	• Stressfulness of rumours was correlated with having communication problems with the soldier, length of deployment, soldier's rank, and unit support systems. • It appeared to be reduced by good unit leadership, good family support groups, and better emotional adaptability of spouses, and • Increased by reliance on surface mail for communication
Angrist 2000[55]	US Military. Data from the 1992 Survey of Officers and Enlisted Personnel. Response rate 62% Design: cross-sectional, comparative (12033 deployed, 46749 non-deployed) *N* = 59,930, Quality = 10-11	Spouse employment rate, marital stability (divorce rate). 1992 Survey	• Deployments of a male soldier reduced wives' employment rates • Deployment of a female soldier left husbands' employment rates unchanged • female deployment is associated with higher post-deployment divorce rates, • male deployment is not associated with higher post-deployment divorce rates.
Schumm 1996[53]	US Spouses of enlisted soldiers deployed to Somalia in 1992-3 Design: retrospective, interrupted time series (compared Pre- with post-deployment) *N* = 478, Quality = 7	Marital satisfaction Study-designed questionnaire	• Difficulties experienced during a brief deployment have little effect on marital satisfaction during post-deployment

Study ID	Population	Outcomes, measurement tools	Results
Rosen 1995[52]	US Wives of Army personnel deployed in Gulf War (Desert Storm). Sample representative of deployed units. 67% response at follow up. Design: prospective, interrupted time series *N* = 776, Quality = 7	Stress Validated questionnaires	• 40% spouses were distressed during deployment and recovered post deployment, • 24% were distressed at both time points. • Spousal distress improved post deployment, • Stress occurring during deployment had both direct and indirect impact on later distress levels.
Rosen 1994[51]	US Wives of Army personnel deployed during first Gulf war. Random sample 35-75% response rates. Design: cross-sectional, non-comparative *N* = 1,274, Quality = 7	Emotional wellbeing, attitude to army Validated and Study developed questionnaires	• Difficulties with coping to age and rank: youngest but also oldest experienced most problems, officers' wives coped better. • Groups with high levels of distress had highest levels of dissatisfaction with services and highest expectations. • Hispanic and full time employed spouses had lower well being which may be related to lower social support.
Eisen 2006[68]	US National sample of spouses of Gulf War veterans, 10 years post deployment. Design: cross-sectional, comparative (with wives of non-deployed) *N* = 1,207 couples, Quality = 10	Physical health Laboratory and Medical examination	• Overall, spouses of deployed did not have poorer medical outcomes 10 years post deployment compared to non-deployed veteran spouses, but: • Spouses of deployed had higher levels of skin rashes and chronic hepatitis • Health problems of spouses were independent from health problems of husbands
Santic 2006[71]	Bosnia-Herzegovina: Family members of soldiers killed in 1992-95 war. Representative sample. Design: prospective, comparative (with bereaved families) *N* = 1,726, Quality = 10	Physical and mental health Laboratory and Medical examination	• Blood pressure (BP) higher in families with killed soldier at both time points. • Decrease in hypertension over time in bereaved families only. • Higher PTSD, smoking and alcohol consumption in bereaved families. • BP higher in those with PTSD, smoking and drinking habits regardless of loss. • More people in the bereaved group who did not drink or smoke had hypertension.

Table B.10 Secondary traumatisation of spouses of veterans with PTSD

Study ID	Population	Outcomes, measures	Results
Renshaw 2008[32]	US. Spouses and National Guard soldiers deployed to Iraq in 2005-2006, assessed 3 moths after return. Design: cross-sectional, semi-comparative (with previously published normative and psychiatric samples) *N* = 49 couples Quality = 10	PTDS, depression, combat exposure, marital satisfaction in soldiers and spouses and the perception of above in spouses. Validated scales.	• Spouses' scores on depression and PTSD symptoms were nearly twice that of the norm sample but below the mean of the psychiatric patients. • About 45% of wives had a score indicative of possible clinical depression (vs 17% in the normative sample and 70% in psychiatric patients). • And about 12% had a score indicative of PTSD. • Marital satisfaction was in the normal range; only 17% had a score indicating marital problems (6-26% in norm). • spouses' marital stress and marital satisfaction was related to spouse perception of soldier's combat exposure: • -if spouse's perception of husband combat exposure was low, their marital satisfaction suffered. • -if spouse's perception of husband combat exposure was high, it buffered wives against marital stress.
Al-Turkait 2008[19]	Kuwait. Wives of Gulf War military men from four subgroups: retired, active-at-rear, combat, POWs. Design: cross-sectional, comparative (retired vs active at-rear vs combat) *N* = 178 couples Quality = 10-11	Mental health and wellbeing Study-designed questionnaire	• 28% of all wives fulfilled criteria for probable PTSD. • The prevalence of wives' PTSD was more than twice higher in combat and POW groups than in retired and active-at-rear. POW group had the most combat exposure and the wives were the most affected, retired group-the least. • PTSD was significantly associated with husbands' combat exposure, her presence in Kuwait, but not with husbands' PTSD status. • Wives' PTSD was mostly predicted by their own depression/anxiety scores. • Number of children was inversely correlated with women's' anxiety and depression scores. Employment & education were not.
Franciskovic 2007[26]	Croatia. Wives of veterans of 1991-5 Croatian war undergoing PTSD treatment in 2005. 64% response rate. Design: cross-sectional, non-comparative *N* = 57 Quality = 8	Mental health: secondary traumatisation Study-designed questionnaire	• 39% of women met the diagnostic criteria for secondary traumatic stress, • 57% had six or more symptoms of secondary traumatic stress, • 5% only had no symptoms. • longer marriage and unemployment were significant predictors of secondary stress.

Study ID	Population	Outcomes, measures	Results
Goff 2007[27]	US. Male Army soldiers who recently returned from a military deployment to Iraq/Afghanistan and their female spouses/partners. Design: cross-sectional, non-comparative Sample selection: convenience (self-selected) *N* = 45 couples Quality = 7	Relationship satisfaction Validated scales	• Significant correlation was found between female relationship satisfaction and soldiers' relationship satisfaction and soldiers' dissociation and anxiety scores. • Increased trauma symptoms, particularly sleep problems, dissociation, and severe sexual problems, in the soldiers significantly predicted lower marital/relationship satisfaction for both soldiers and their female partners.
Dirkzwager 2005[56]	Holland: Partners of former Dutch Peace Keepers, ~50% response rate for veteran's population, 70% response rate. Design: cross-sectional, comparative (between four PTSD symptom groups) *N* = 696 Quality = 10	Mental health, Marital relations Validated scales.	Partners of peacekeepers with PTSD symptoms had reported • more sleeping and somatic problems, • more negative social support, • less favourable marital relationship
Manungo-Mire 2007[31]	US Wives of Vietnam veterans in outpatient PTSD treatment. Design: cross-sectional, non-comparative *N* = 89 Quality = 8	Mental health: distress and caregiver burden Study-designed questionnaire	• Partners had high levels of psychological distress (clinical scales at ≥ 90th percentile), 15% had suicidal ideation and ~25% had mental health treatment. • Partners' psychological distress was predicted by perceived threat, recent mental health treatment, and level of involvement with veterans. • Partners' burden was predicted by partner self-efficacy, perceived threat, barriers to mental health treatment, and partner treatment engagement.
Sherman 2005[57]	US Wives of Vietnam veterans currently treated for PTSD, mean age 52 (SD 5.8), 51% white 42% African-American, 7% Hispanic. Design: cross-sectional, non-comparative *N* = 89 Quality = 7	Mental health and services needs Study developed questionnaire	• 64% thought accessing individual therapy was necessary to help cope. • 78% thought important for couple therapy. • Only 28% had received any mental health services in previous six months.

Study ID	Population	Outcomes, measures	Results
Evans 2003[65]	Australia. Spouses and Vietnam veterans entering PTSD treatment clinic Design: cross-sectional, non-comparative *N* = 288 couples Quality = 10	Family functioning Questionnaires	• Veterans' perception of family functioning is correlated with three PTSD symptoms of intrusion, avoidance and arousal, and with co-morbid symptoms of anger and depression, but not with alcohol abuse. Avoidance affects family functioning directly, arousal is mediated by anger. • Partners' perception of family functioning is correlated with two PTSD symptoms of avoidance and arousal, with co-morbid symptom of anger and with alcohol abuse but not with intrusion or depression. Only anger affects family functioning directly. PTSD symptoms are mediated by anger.
Calhoun 2002[59]	US Spouses of help seeking combat Vietnam veterans with and without PTSD Design: cross-sectional, comparative (with vets without PTSD) *N* = 71 couples Quality = 9	Mental health and caregiver burden Validated scales.	• Partners of PTSD veterans had greater caregiver burden experience and poorer psychological adjustment compared to non-PTSD veterans partners. • Care giver burden was correlated with severity of veteran PTSD symptoms and IPV, but not with age, race, education, and social support. • Partners' distress increased with burden, IPV and age
Alessi 2001[62]	US Wives of Vietnam veterans seeking psychological services. Design: cross-sectional, comparative (with standardised sample) *N* = 131 Quality = 7	Mental health Validated scales.	Veterans' wives had higher levels of distress and conflict than non-veterans wives, but did not reach pathological cut-off scores. (very bad comparison sample)
Ben Arzi 2000[58]	Israel: Wives of (old) veterans with PTSD and post-concussion (PC) syndromes. Convenience sample. Design: cross-sectional, comparative (with wives of healthy vets) *N* = 60 Quality = 9	Mental health: distress, carer burden Validated scales.	PTSD and PC wives have greater psychological distress and carer burden than controls.

Study ID	Population	Outcomes, measures	Results
Taft 1999[66]	US Wives and Vietnam veterans with PTSD (31%), high combat exposure (21%), non-specific distress (16%), or low risk control (32%). Design: cross-sectional, non-comparative *N* = 466 Quality = 9	Extracted outcome: marital relationships Validated scales.	• Spouses of veterans with more PTSD symptoms had lower quality of marital relationships (negative correlation in bivariate analysis). • Spouses of veterans with more PTSD symptoms perceived more PTSD symptoms in veterans • The perception of quality of marital relationships is not independent from the perception of PTSD symptoms (three-way relationship on multiple analyses).
Riggs 1998[64]	US Male Vietnam veterans with PTSD and spouses. Convenience sample from DVA medical centres. Design: cross-sectional, comparative (with wives of veterans without PTSD *N* = 50 couples ity = 8	Marital relations: Intimacy, marital adjustment. Validated scales.	PTSD affected marital adjustment negatively: • More couples reported lower relationship quality, greater relationship distress, difficulty with intimacy, more problems in the relationship. • Over 70% PTSD group had clinically significant marital distress
Browne 1996[63]	US Vietnam veterans and their spouses. Convenience sample Design: cross-sectional, non-comparative *N* = 48 couples Quality = 9	Mental health and marital relationships Validated scales.	• Both partners on average demonstrated low to moderate relationship dysfunction and moderate to severe symptom severity. • Spouses' ratings of cohesion, expressiveness, enmeshment and conflict were correlated with their own, but not with veterans' symptom severity. • Both partners rating of warmth and nurturance were correlated with spouse's PTSD scores.
Solomon 1992a[61]	Israel: Wives and Lebanon war veterans diagnosed with combat stress reaction (CSR). Clinical sample. Design: Retrospective, comparative (with and without CSR) *N* = 80 Quality = 7	Mental health and marital relationships Semi-structured interview	• CSR wives reported more PTSD symptoms in husbands • Both CSR and perceived PTSD were correlated with wives mental health and marital relationships. • Perceived PTSD had the greatest effect but effect was cumulative. • Variables negatively affected: wife's paranoia, interpersonal sensitivity, hostility, marital satisfaction, cohesion, consensus, family cohesion and expressiveness, increased loneliness, decreased social support.

Study ID	Population	Outcomes, measures	Results
Solomon 1992b[67]	Israel: Wives and Lebanon war veterans diagnosed with combat stress reaction (CSR). Clinical sample. Design: cross-sectional, comparative (with wives of veterans without PTSD *N* = 205 couples Quality = 9	Marital relations Validated scales.	• Husbands' CSR resulted in an increase in conflict and a reduction in satisfaction and cohesion (at all time points). However: • Impaired marriage may be symptom of difficulties in interpersonal relationships, • data were retrospective
Solomon 1991[60]	Israel: Wives and Lebanon war veterans diagnosed with combat stress reaction (CSR). Clinical sample. Design: cross-sectional, non-comparative *N* = 44 couples Quality = 9	Mental health and marital relationships Validated scales.	All husbands had CSR and 30% met criteria for PTSD. • Wife's mental health variables (anxiety, hostility and depressive symptoms) were correlated with husbands PTSD • These variables were affected by her relationship with her husband, but not with other members of social network (parents, children, friends) • Husbands' expressiveness was the key element of marital relationship.

Table B.11 Intimate partner violence in military

Study	Study characteristics: population, design, controls, size, appraisal score	Results
IPV in veteran population		
Bradley 2007	US Military veterans and cohabiting spouses in the National Survey of Families and Households (stratified sample). Does not include current military personnel. Design: cross-sectional, comparative (vets vs non-vets) *N* = 7422, Appraisal Score 10	In unadjusted analysis male vets were less likely to be involved in IPV than non-vets (23% reduction in odds). After adjusting for relationship stressors there were no sig. differences. No gender differences with female vets/non-vets. IPV odds were increased by relationship stressors, financial debt, substance abuse, quarrelling and child behavioural problems. If IPV already present it was exacerbated by greater number of children in the family.
Teten 2009	US. Middle aged veterans and their spouses seeking therapy for relationship issues. Data was collected between 1997 and 2003. Most of veterans were diagnosed with a mental health problem (59 vets with PTSD, 78 with depression). Design: cross-sectional, non-comparative *N* = 184 couples Appraisal Score 8	Three violence profiles were identified based on self-reports of physical violence: non-violent (44%); one-sided violent (30%); and mutually violent (26%). Profiles were distinguished based on the veteran's psychiatric diagnosis, woman's age, and both partners' reports of the frequency and severity of violence. Men and women in mutually violent couples reported more verbal and physical aggression than did men or women in any other group. Rates of sexual aggression, marital satisfaction and intimacy were comparable in all three groups. The frequency and severity of verbal, physical, and sexual aggression was not gender dependent.
Lutgendorf 2009[30]	US Navy. Pregnant women presenting to a Naval hospital in Plymouth for initial prenatal care. Data collected between January 2007 and Match 2008. Design: cross-sectional, non-comparative Participation rate = 95% *N* = 1162, Appraisal Score 10	The rate of IPV in this population was 14.5%. The risk of physical or emotional abuse was almost two times higher for single women compared to married women (OR-1.8, 95%CI1.04-3.16), and the risk for separated and divorced women was more than three-fold (OR = 3.45, 95% CI 1.59-7.46)

Study	Study characteristics: population, design, controls, size, appraisal score	Results
Martin 2007[11]	US. Population: Army, active duty soldiers exclusively, substantiated cases of Spouse and child abuse. Three groups of family violence offenders were compared: (1) those who perpetrated spouse offences only; (2) those who perpetrated child offences only; and (3) those who perpetrated both spouse and child offences. Data collected between Jan 2000 and Dec 2004. Design: examination of records *N* = 10,864, Appraisal Score 10	Family violence offenders were mainly was distributed between the groups as follows: • spouse offenders who had not committed child abuse (61%), • child offenders who had not committed spouse abuse (27%), and • those who committed both spouse and child offenses (12%). Compared to all Army Soldiers, the family violence offenders were • less likely to be white (44 vs 58%) • more likely to be Black (42 vs 27%) • more likely to be enlisted than officers (97 vs 86%) • more likely in the higher salary grades of E4 or higher (77% vs 71%). • more likely to be married (96% vs 51%) The mean age of the family violence offenders was comparable to that of all Army Soldiers (27.9 vs 28.0 years).
Sherman 2006	US Military veterans and spouses seeking relationship counselling (predominately Caucasian). Design: cross-sectional, non-comparative *N* = 179, Appraisal Score 9	IPV perpetration was higher in higher (both severity and rate) in PTSD (OR = 5.43) and depressed (OR = 3.97) veterans. All groups had distress levels of marital satisfaction.
Taft 2005	US Partner violent Vietnam veterans. Sub sample of NVVRS who both completed the Family Interview component (64% Caucasian). *N* = 109 Design: cross-sectional, comparative (IPV+/PTSD+ vs IPV+/PTSD- vs IPV-/PTSD+vs IPV-/PTSD-) *N* = 109, Appraisal Score 10	All veterans with PTSD had higher relationship problems compared to non-PTSD. PTSD+/IPV+ was higher in veterans with atrocity exposure, major depression, drug abuse and poorer marital problems compared to PTSD-/IPV+. Violence in family of origin was not different between PTSD+/IPV+ and PTSD-/IPV+ groups.
Orcutt 2003	US Vietnam veterans and spouses in NVVRS who had completed the Family Interview component (47% Caucasian, 24% African American, 29% Latino). Design: cross-sectional, non-comparative *N* = 376, Appraisal Score 10	Direct relationships to IPV: Relationship quality with mother; war zone stressors; PTSD symptom severity. Indirect relationships to IPV via PTSD: Stressful childhood; childhood antisocial behaviour; war zone stressors. PTSD appeared to increase persons' risk of perpetrating IPV.

Study	Study characteristics: population, design, controls, size, appraisal score	Results
Savarese 2001	US Vietnam veterans and spouses in NVVRS who had completed the Family Interview component (47% Caucasian, 24% African American, 29% Latino). Design: cross-sectional, non-comparative *N* = 376, Appraisal Score 11	Frequent drinking was positively correlated with physical violence. Hyper-arousal increased both physical and emotional abuse and alcohol abuse Both hyper-arousal symptoms and heavy drinking had independent effects on physical violence, but drinking frequency was not independently related to violence.
Beckham 1998	US Consecutive help seeking combat veterans with PTSD (52% Caucasian, lower middle class). Design: cross-sectional, non-comparative *N* = 151, Appraisal Score 9	Combat and atrocity exposure significantly related to PTSD symptom severity. Atrocity exposure (controlling for combat exposure) was significantly related to overall PTSD symptoms, Atrocity exposure was NS related to interpersonal violence.
Beckham 1997	US Consecutive help seeking combat veterans with PTSD (62% Caucasian, lower middle class). Design: cross-sectional, non-comparative *N* = 118 , Appraisal Score 9	IPV. Was directly correlated with lower SES, greater PTSD severity and higher hostility And indirectly (via hostility) with younger age, greater combat exposure, greater PTSD severity.
Effect of deployment on IPV		
Newby 2005	US Wives of recently deployed soldiers (Gulf war) from one large Army base (30% response rate; 70% Caucasian, 11% African American, 10% Hispanic). Cross-sectional, comparative (deployed vs non-deployed) *N* = 896 , Quality score = 11	Deployment not a risk factor for later IPV for whole group; Younger wives reported higher levels of post-deployment IPV. Pre-deployment IPV predicted post-deployment IPV.
McCarroll 2003	US Married soldiers recently returned (3-4 months) from 6 month deployed in Bosnia (Peace Keeping) and non-deployed from same unit. Representative sample Cross-sectional, comparative (deployed vs non-deployed) *N* = 3493, Quality score = 11	NS difference between pre- and post IPV 3-4 months post return. IPV related to youth, non-white race, living off base, and previous history of IPV. Pre-deployment IPV 4-5 times greater risk of IPV regardless of deployment status.
McCarroll 2000	US Random sample of married active duty Army personnel from 47 bases (95% male; 62% Caucasian; 57% deployed (between 1990-4) in past 12 months. Cross-sectional, comparative (deployed in past 12 months vs non-deployed) *N* = 26,835, Quality score = 11	Small but significantly higher rates of severe IPV in the deployed vs the non-deployed group; the longer the deployment the more likely IPV.

Study	Study characteristics: population, design, controls, size, appraisal score	Results
Impact of IPV on family functioning		
Chrysos 2005	US Vietnam veterans and partners. Sub sample of NVVRS who both completed the Family Interview component (64% Caucasian). Design:)cross-sectional, comparative (4 groups related to gender and direction of violence *N* = 298, Appraisal Score 10	Male Vietnam veterans perpetrated more severe violence than women; severity was highest in bi-directional violence; female victims of IPV reported poorer family functioning then male victims and female non-victims.
Samper 2004	US Vietnam veterans and spouses in NVVRS who had completed the Family Interview component and had biological children (46% Caucasian, 22% Blacks Design: cross-sectional, non-comparative *N* = 250, Appraisal Score 11	Partner violence significantly related to all PTSD symptoms and severity variables; and also to parenting satisfaction;

Table B.12 Effect of military mobility on spouse employment

Study ID	Population	Results
Castaneda 2009[21]	US Spouses of military personnel residing at eight different Continental United States (CONUS) military installations—two from each of the four military services Design: cross-sectional, telephone or in-person interviews, quantitative and qualitative data, collected from October 2002 to March 2003, *N* = 1,102 Sample selection: random from all eligible, participation rate = 82% Study quality = 10	Perceived effect of spouses military career on civilian spouse's work opportunities: • 66% perceived negative effect • 33% perceived no effect • a miniscule portion perceived a positive effect. These findings were roughly consistent across locations and services, but differed by the pay grade of the service member. The more senior the service member, the more likely the spouse to perceive a negative impact (spouses of >75% of the senior officers and <50% of junior enlisted). The perceived causes of negative effect were primarily: • Frequent and disruptive moves, • Service member absence and ensuing • Child care difficulties, and • Employer bias against military spouses (temporary nature of their employment) • Base location in high unemployment areas. Spouses Suggestions to Improve Their Employment Opportunities • Improve Child Care • Increase Awareness of Existing Military Spouse Employment Programs • Improve Civil Service Employment Policies and Processes • Address Licensing and Certification Constraints • (Ideally) Require Less Frequent Moves
Cooke 2005[83]	US Civilians spouses of military personnel (≥ 5-years in military), living in the same Labour Market area in 1985 Design: Retrospective, comparative (movers vs stayers) *N* = 8,350 Quality = 11	• 77% of women and 62% men had migrated. • Migration associated with lower employment and lower number of hours worked per week among civilian female spouses (by 4h/week). • Similar but ns figures for civilian male spouses.

Study ID	Population	Results
Cooney 2003[84]	US Spouses currently married to active duty military personnel. Secondary analysis of 1992 DoD Survey of Officers and Enlisted Personnel and their Spouses Design: cross-sectional, non-comparative *N* = 14,874 Quality = 10	• Geographical mobility was associated with: • increased difficulty to find work, • increased dissatisfaction with work opportunities, • decreased employment, • decreased annual income.
Mederer 1992[87]	US Wives of Navy submarine officers, 64% return rate. Design: cross-sectional, comparative (high vs low involvement) *N* = 81 Quality = 8	• Officers' wives with traditional views of gender roles were more involved in their husbands careers and less likely to be involved in competing activities • Traditional views of gender roles and greater involvement in Navy life were related to higher life satisfaction ratings.
Schwartz 1991[85]	US Army spouses: Random sample. Stratified within each service by length of service and gender. Mean age 31 years. Design: cross-sectional, non-comparative (*N* = 5,484 spouses Quality = 8	• Greater likelihood of employment: Being on main land US, greater length of time in current location, presence of spouse employment service, higher education, black, and children aged 12-17. • Less likely: children in preschool, spouses with higher wages.
Bowen 1987[86]	US Air Force personnel and their wives. Random sample. Married couples in 24 bases world wide, 70% agreed to participate, stratified to proportionally represent each geographical area Design: cross-sectional, comparative (Employed vs unemployed) *N* = 675 couples Quality = 8	• Wife employment was not correlated directly to marital adjustment (husband and wives reports). • Indirect interactions between marital adjustment, base location, husbands rank & wives' employment status: officers in mainland bases whose wives worked full-time reported poorer marital adjustment.
Ickovics 1987[88]	US Wives of enlisted soldiers, 70-75% from selected types of unit (non-probability sample). Design: prospective, non-comparative *N* = 278, Quality = 8	• Spouses employed at both assessment times had lower scores on General Wellbeing Scale. • Score increased in spouses not employed at first assessment but employed at second.

Table B.13 Peacetime deployment/military separation

Study ID	Population	Outcomes, measures	Results
Frankel 1992[89]	US Wives of Navy Patrol Aviation Squadrons being deployed in Pacific in eighties. Design: prospective, interrupted time series (4-time points) *N* = 75 couples Quality = 8	Physical and mental health, marital relationships Validated scales.	• Dysphoria symptoms increased over time, with increased family stress (older children) increasing dysphoria and family cohesiveness being a protective factor. • Marital happiness predicted lower health complaints in later deployment only • Family functioning and adjustment depended on individual and family resources and satisfaction with social support rather than deployment itself • Depression did not increase (no pathology).
Abbe 1986[90]	US Spouses of Navy personnel deployed on a aircraft carrier for 34 weeks in 1982-3 Design: comparative (deployed vs non-deployed), interrupted time series *N* = 76 Quality = 10	Health utilisation before, during and after deployment	• Wives of deployed utilised health services more in post-deployment period, but not before or during deployment • These medical visits were generally tress-related
Rosen 1988[91] and Rosen 1989[92]	US Wives of soldiers from 12 combat battalions (but not deployed to any war). 33% participation rate. C-S, non-comparative *N* = 947 Quality 8 and 9, respectively	General wellbeing, Quality of life. Study developed questionnaires	• Only combination of Stress and perceived lack of Social Support had an adverse effect on spouse Wellbeing • Effect of stress on Wellbeing were modified by Social Support • Military specific factors contributed significantly to life satisfaction, but • major proportion of life satisfaction was related to non-military factors

Table B.14 Effects of military service on family functioning and wellbeing of spouses

Study	Population, study design, size, appraisal score and additional stressors	Outcomes, measures	Results
Bowen 2003[97]	US Air Force members and civilian spouses. Random and representative sample. C-S, non-comparative *N* = 17,161 Quality 8	Family adaptation, Sense of community Study-developed questionnaire	Variables that had a positive effect on family adaptation: Sense of community - largest, direct. Unit support - second largest, indirect (via sense of community) Informal community support - small direct and indirect (via sense of community) Sense of community also affected by housing location, base location, community tenure, and number of children
Paulus 1996[95]	US Army families living in mobile homes and apartments near Army base C-S, non-comparative *N* = 169 Quality 7 Additional stressors: housing, morale and life problems	Marital harmony, health, and wellbeing Study developed surveys	Housing experiences was not correlated with morale, marital harmony, health, or wellbeing. Daily Life Problems were related to lowered morale, harmony, health, and wellbeing. Results were generally similar for enlisted men and their spouses.
Eastman 1990[98]	US Married Navy couples representative sample 69% response rate. C-S, comparative (with normative data) *N* = 785 Quality 10	Family functioning and life stress. Validated scales.	Navy families family environment not different from US normal families but better than US distressed families on cohesion, expressiveness, conflict, organization. Family environment was independent of deployment cycle and command assignment and were related to demographic variables such as age, race, number of children, total time in service and total years married. Life stress was independent of above but was related to deployment cycle and command assignment Higher life stress was related to lower cohesion, expressiveness, organization and higher conflict.

Study	Population, study design, size, appraisal score and additional stressors	Outcomes, measures	Results
Martin 1987[93]	US Representative sample of military wives (75% retention). Prospective, non-comparative *N* = 277 Quality 8	Marital stress, general wellbeing. Validated scales.	Both military stress and marital stress have independent impact on general wellbeing of army wives.
Peterson 2004[70]	US Random, TRICARE beneficiaries. Response rate = 16%. Design: prospective, non-comparative *N* = 50,160 Quality = 8	Health utilisation	An increase in unfavourable health outcomes post Sept 11 in total sample. Increase in all beneficiaries <45 years and in both genders (i.e. active duty families felt more impact – stress related to likelihood of being deployed). Increases found with women affiliated with marines and males affiliated with army but not other combinations.
Constantian 1998[69]	US Stratified random sample of all of all DoD beneficiaries as of 1994. 15.7% response rate. Design: cross-sectional, comparative (with general population) *N* = 26,097 Quality = 7	Health utilisation	Rates of mental health service utilisation generally similar, Female pilots and spouses of pilots had more problems but used mental health service less than the general population.
Anson 1993[105]	Israel: Wives of Army personnel attending primary care health clinic, non-military wives living in the same community. Design: cross-sectional, comparative (with general population) *N* = 98 Quality = 8	Health utilisation	Army wives, compared to wives living in the same community, had: Greater mobility, reduced social support, reduced employment status, Higher health service utilisation for children but not for themselves, Similar perception of their physical and mental health

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Appendix C Qualitative research summary

Summary

The Timor-Leste Family Study qualitative research aimed to obtain personal accounts from partners of ADF members who have been on a deployment, assist with the development of the study's quantitative questionnaire and publicise the study to the target population.

Focus groups and individual telephone interviews with 21 female partners of serving and ex-serving ADF members were conducted between May and August 2010.

The key findings of the qualitative research are:

- Deployment had an impact on the health of the participants' families.
- For some participants' families, the adverse health impacts of deployment were short-lived, for others the impacts were enduring. The ongoing adverse mental health of the ADF member was identified as the reason for enduring impacts.
- The participants identified that social support was a key protective factor for reducing adverse health impacts from deployment
- The participants identified that their 'life stage' (i.e. age, relationship status and duration, presence of children) was an influencing factor on the impact of deployment on their family.

The qualitative research assisted with the development of the questionnaire by:

- Confirming that the matters identified for investigation in the questionnaire were valid for the target population.
- Identifying demographics, such as length of relationship and presence of children as important influences on the impact of deployment. These factors will be analysed in the quantitative data analysis.

Aims

1. To obtain personal accounts from partners of ADF members who have been on a deployment in regards to physical, mental and family health impacts of deployment and influencing factors.

Qualitative research can explore phenomena in greater detail than quantitative research, therefore providing researchers with a greater understanding of the components of a phenomenon and the factors that influence it.

2. To assist with the development of the Timor-Leste Family Study quantitative questionnaire.

Qualitative research can ensure that the key matters of concern to a population are adequately addressed in quantitative research.

3. To publicise the Timor-Leste Family Study to the military family population.

The contemporary families of ADF members have received little academic attention. Qualitative research can help researchers determine the preferences and attitudes of a target population.

Sample

Participation was sought from current and former partners of serving and ex-serving ADF members who had been on at least one deployment to Timor-Leste or another contemporary deployment (i.e. post Vietnam War deployments).

Method

Data sources

Focus groups (small group discussions) and individual telephone interviews were chosen over other qualitative methods for their ability to actively elicit perceptions, opinions and beliefs from a target population. Using both methods also allowed willing participants who could not participate, or did not want to participate, in one method to participate in the other.

Both methods used a discussion guide to elicit participants' thoughts on the impact of their ADF member partner's deployment on their family's physical, mental and family health. The guide used the 'Emotional Cycle of Deployment for Families' framework (Pincus 2005) to chronologically direct the participants through a deployment. The Emotional Cycle framework contends that families experience five stages of deployment that are characterized by different 'emotional challenges'. Therefore the guide, for example, told participants to think about the time just before their partner deployed and reflect on their and their family's health and wellbeing at this time.

The study team contended that four focus groups with between 4-8 participants per group would provide sufficient data for meaningful analysis. The locations for the focus groups were chosen for their proximity to a Navy, Army and RAAF base.

Participant recruitment procedure

Participants were recruited through publicity materials. Articles were published in publications read by military families (Defence Family Matters magazine, Defence Community Organisation (DCO) and Defence Families of Australia bulletins and the tri-Service Newspapers). Posters and flyers were placed with organisations accessed by military families (DCO offices and Veterans and Veterans Families Counselling Service offices). The focus group locations and times were also circulated on social media accessed by military families (military social and support groups on Facebook).

The dates and times for the focus groups were decided from constant interaction with interested participants. For those who could not attend at the finalised times, the study team offered an individual telephone interview.

As the initial response rate was not high, the study team opened up participation to partners whose ADF member partner had never deployed or who was about to deploy.

Data collection

The four focus groups were conducted at the locations and dates shown in the figure below. Private function rooms at RSL clubs and cafes were used and participants were provided with refreshments. On average the focus groups lasted one and a half hours. The four individual interviews were conducted at a time of convenience for the participants between June and August and lasted, on average, one hour.

Three study team members attended each focus group, with either the Chief Investigator or a research officer facilitating the discussion. The same research officer (a registered psychologist) conducted the individual interviews.

Prior to the focus groups and interviews, the participants were provided with an information sheet, a consent form and a confidentiality form (the latter only for focus group participants). The consent and confidentiality forms were collected at the start of the focus group. Interview participants were required to post/fax/email their consent form to the study team prior to their interview.

Location	Service targeted	Date
Ipswich	RAAF (RAAF Base Amberley)	Wednesday 19 May
Sydney (CBD)	Navy (HMAS Kuttabul)	Wednesday 26 May
Brisbane (CMVH office and Ashgrove)	Army (Gallipoli Army Barracks)	Wednesday 16 June Saturday 19 June

Figure C.1 Timor-Leste Family Study focus groups—location and date

Analysis procedures

With the permission of the participants the focus groups and interviews were recorded with a digital device. The recordings were then transcribed using a secure transcription service. The files from the device were transferred onto a CD that is stored securely in a locked cabinet at CMVH.

Thematic analysis was performed on the transcripts. Thematic analysis is the process of coding text to identify themes. Coding is the application of descriptions to chunks of data. The themes for this analysis were chosen prior to analysis and were the four Timor-Leste Family Study foci–physical, mental and family health and risk and protective factors for health.

Two study research officers conducted separate thematic analysis, then compared their findings and agreed on the final categorisation of data into the themes.

Findings

Participants

Twenty current partners and one former partner of serving and ex–serving ADF members participated in a focus group or telephone interview. All participants were females aged between 20-52 years. Seventeen were married to their ADF member partner and half had children aged less than 18 years. Seventeen participants were the partners of Army personnel, four the partners of RAAF personnel and no partners of Navy personnel participated. One partner of a Navy member contacted the study team for participation in the Sydney focus group; however, she was unable to attend on the day and did not wish to participate in a phone interview.

Seventeen participants had either experienced their partner's deployment/s or were currently experiencing their deployment. Seven participants had experienced the deployment of their ADF member partner to Timor-Leste one or more times. Other deployments experienced included the 1991 Gulf War, Somalia, Rwanda, Bougainville and the current operations in the Middle East.

Themes

Physical health

Four of the 21 participants reported a physical health impact from their partner's deployment. One participant was experiencing the deployment of her partner at the time of the focus group and described her difficulty sleeping: 'I have to take sedatives or tranquilisers now 'cause I don't sleep otherwise.'

Mental health

All of the participants conveyed that their mental health was impacted to a certain degree by their ADF member partner's deployment. For most, this just entailed a higher level of 'worry' than usual, however eight of the participants reported a clear impact on their and their family's mental health.

Four participants reported having to take anti-depression/anxiety medication while their partner was deployed and three participants stated that they sought formal counselling before or during the deployment. One participant described her reason for seeking formal Defence counselling during her partner's deployment: '...it [emotional turmoil] just got too much at one stage and I had to speak to someone.'

Several participants stated that their partner's deployment had positively impacted their mental health, in terms of increased self-efficacy. One participant asserted: 'It's [her partner's deployment] made me stronger … more independent.'

Family health

The participants reported impacts on family health from their partner's deployment. For participants with children, there was consensus that the impact of deployment was compounded by their change in parent status. One participant remarked: 'Suddenly you're a single mum.'

A participant without children revealed that her partner's deployment caused tension in their relationship: 'We had lots of arguments, lots of fighting in the six months leading up to it [her partner's deployment]...I tried to do everything that I could to stop him from going.'

For another participant the deployment strengthened her relationship with her partner: 'If anything we have become a lot closer.'

Five participants reported that their partner was either diagnosed with Posttraumatic Stress Disorder (PTSD) or displayed symptoms of PTSD because of their deployment experiences. The effect of the ADF member's PTSD on these particular families was marked.

Risk and protective factors

The participants identified that social support was a key protective factor for reducing adverse health impacts from deployment. One participant stated: 'I don't think I would have survived these three months without my girlfriend...she's just been amazing since he [my partner] left [on deployment]'.

Other key insights

The participants identified that their 'life stage' (i.e. their relationship status and duration, the presence of children) influenced the impact of deployment on their

family. One participant's partner deployed when their son was a child and again when he was a teenager. The participant commented on the different reaction her son had to the two deployments: 'The next time around in Iraq was a totally different story. Only because the wonderful seven year old [son] was then 14...he [son] missed him [father] terribly. He fell into a bundle.'

Conclusion

These findings do not claim to reflect the 'average' experience of all partners of ADF members who have been on a deployment; rather they provide a greater understanding of what it is like to experience such a phenomenon (deployment of a partner), the different components of the phenomenon and the factors that influence how it is experienced.

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Appendix D Pilot study summary

Summary

The Timor-Leste Family Study pilot study aimed to test all online and hard-copy processes and determine response and completion rates. One hundred ADF members and 70 partners of members were invited to the study and 20 volunteers participated. The pilot study was conducted between November 2010 and February 2011.

The key findings of the pilot study were:

- While ADF members completed their questionnaire at a higher rate than partners, a number of partners did not receive phone follow-up because of time constraints on the pilot study.
- The procedure of phoning individuals who had not responded to their invitation or reminder was essential for encouraging and facilitating participation.
- A lower completion rate for both the partner and ADF member Comparison groups was anticipated, but the reverse occurred for the ADF members; however the numbers are too small for tests of significance.

The key recommendations from the pilot study for the main study were to:

- Increase the amount of time spent talking to an ADF member on the phone to encourage them to provide the study team with their partner's contact details.
- Make instructions for certain question sets in the questionnaires clearer; increase the number of times that participants are reminded that they may skip questions they find difficult; re-work question order in the hard-copy questionnaire and 'show–if' logic in the online questionnaire so that certain questions not relevant to all participants do not have to be addressed/presented.

Sample

One hundred ADF members and 70 partners of members were invited to the study and 20 volunteers participated. Of the 100 ADF members, 80 had completed a MilHOP study* and had consented to CMVH using their partner's contact details on the nominal roll to invite their partner to the study. The nominal roll, however, only held contact details for 60 partners.

For the remaining 40 ADF members who the study team did not have partner contact details for, the ADF members were asked to provide (if they wished to) their partner's contact details on their study consent form. Ten ADF members provided their partner's contact details this way during the pilot study.

An equal number of ADF members who deployed to Timor-Leste (Timor-Leste group) and who did not deploy to Timor-Leste (comparison group) were invited. More comparison than Timor-Leste partners in the 60 partners from the nominal rolls (33 & 27) and from the 10 partners whose details were provided by the ADF member (7 & 3) were invited.

Participant recruitment procedure

Recruitment of participants from the sample involved a three-stage approach that was approved by the ethics committees.

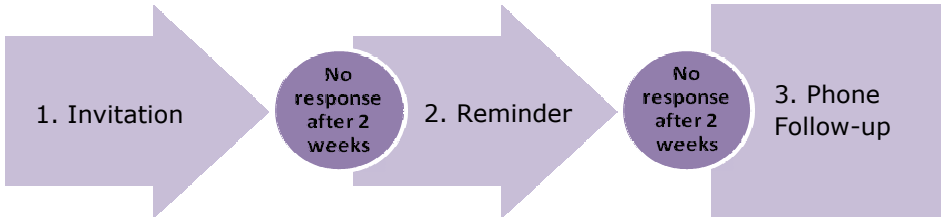

Figure D.1 Participant recruitment procedure

ADF members and partners were emailed or posted an invitation to participate in the study. If an individual did not respond within two weeks they were sent a reminder either by email or post. If there was still no response after a further two weeks phone follow-up commenced.

The phone numbers of individuals who did not respond to their reminder were provided to a team of trained telephone contact staff. The phone numbers were sourced from the nominal rolls. The phone team discussed the study with individuals to determine if they had received an invitation and to explain what participation involved. The phone team also encouraged ADF members to consent to providing their partner's contact details to the study team.

Response

Recruitment outcomes

Table D.1 Recruitment outcomes for the partner, ADF member and volunteer samples

Outcome	Partners *n* (%)	ADF members MilHOP *n* (%)	ADF members non-MilHOP *n* (%)	Total	Volunteers *n* (%)
Invited	70	80	20	**170**	20
Participants[a]	**22 (31.4)**	**54 (67.5)**	**4 (20.0)**	**80 (47.1)**	**15 (75.0)**
Non-participants					
Declined[b]	13 (18.6)	5 (6.3)	5 (25.0)	**23 (13.5)**	1 (5.0)
Did not respond[c]	35 (50.0)	21(26.3)	11 (55.0)	**67 (39.4)**	4 (20.0)
Total	**48 (68.6)**	**26 (32.5)**	**16 (80.0)**	**90 (52.9)**	**5 (25.0)**

a. Participants are individuals who completed a questionnaire.
b. Declined means an individual who either did not consent to the Timor-Leste Family Study or who requested no further contact from the study team.
c. Did not respond means an individual who did not reply to their invitation or reminder and who was not able to be contacted by phone (because the phone attempt was unsuccessful or because of the time constraints of the pilot study).

Interpretation: While ADF members completed their questionnaire at a higher rate than partners, a number of partners did not receive phone follow-up because of time constraints on the pilot study.

Table D.2 Recruitment outcomes for Timor-Leste and comparison partner and ADF member samples

	Partners *n* (%)		ADF members *n* (%)	
Outcome	Timor-Leste	Comparison	Timor-Leste	Comparison
Invited	30	40	50	50
Participants[a]	**11 (36.6)**	**11 (27.5)**	**23 (46.0)**	**35 (70.0)**
Non-participants				
Declined[b]	7 (23.3)	6 (15.0)	6 (12.0)	4 (8.0)
Did not respond[c]	12 (40)	23 (57.5)	21(42.0)	11 (22.0)
Total	**19 (63.3)**	**29 (72.5)**	**27 (54.0)**	**15 (30.0)**

a., b., c. See Table D.1.

Interpretation: A lower completion rate for both the partner and ADF member comparison groups was anticipated, but the reverse occurred for the ADF members; however the numbers are too small for tests of significance.

Process outcomes

The procedure of phoning individuals who had not responded to their invitation or reminder was essential for encouraging and facilitating participation. At the invitation stage the participation rate was 11.8%, at the reminder stage a further 9.4% participated, while the phone-follow-up stage yielded 25.9% of the total participants.

Key recommendations

Strongly encourage ADF members to provide the study team with their partner's contact details

As explained in the Sample section, partners were invited to the pilot study using their contact details that were obtained either from the nominal roll (with the prior-consent of the ADF member) or from the ADF member's Timor-Leste Family Study consent form.

The finding that the nominal rolls did not contain the contact details for all partners heightens the need to encourage ADF members to provide their partner's details to the study team. Twenty-five percent (10 out of 40) of ADF members provided their partner's contact details in the pilot study. This percent would need to be greatly improved in the main study to ensure an adequate partner sample, particularly as only one-third of invited ADF members in the main study will have completed a MilHOP study and consented to partner contact from the nominal roll.

For the main study, the study team will advise the phone team to increase the amount of time spent talking to an ADF member to encourage them to provide their partner's contact details. Scripts will be provided to the phone team that will describe ways this encouragement could be achieved.

Make the questionnaires and their administration more user-friendly

Pilot study participants used their free-text final question in the questionnaire or called/emailed the study team to provide feedback on the questionnaire. Additionally, the pilot study volunteers were provided with the option of completing a feedback survey.

The main feedback items were: instructions for certain question sets were unclear; some question sets were overly invasive; having to address questions that were not relevant to a certain participant was frustrating; and difficulties were experienced when returning to an online questionnaire.

For the main study, the study team will: make instructions for certain question sets clearer; increase the number of times that participants are reminded that they may skip questions they find difficult; change the question order in the hard-copy questionnaire and the 'show–if' logic in the online questionnaire so that certain questions not relevant to all participants do not have to be addressed/presented; and correct technical issues.

Shortened forms

ADF	Australian Defence Force
ADHREC	Australian Defence Human Research Ethics Committee
AUDIT	Alcohol Use Disorder Identification Test
CF	Consultative Forum
CMVH	Centre for Military and Veterans' Health
Defence	Department of Defence
DUSOCS	Duke Social Support and Stress Scale
DVA	Department of Veterans' Affairs
DVA HREC	Department of Veterans' Affairs Human Research Ethics Committee
FACES-IV	Family Adaptability and Cohesion Evaluation Scale
IPV	intimate partner violence
K10	Kessler Psychological Distress Scale
NATO	North Atlantic Treaty Organisation
PCL-C	Posttraumatic Stress Disorder Checklist – Civilian Version
PTSD	Posttraumatic Stress Disorder
QRI	Quality of Relationships Inventory
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
SAC	Scientific Advisory Committee
SDQ	Strengths and Difficulties Questionnaire
SF-12	Short Form-12v2 Health Survey
UQBSSERC	University of Queensland Behavioural and Social Sciences Ethical Review Committee
WAST	Woman Abuse Screening Tool
WFC	Work–Family Conflict Scale

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