

**Australian peacekeepers:
Long-term mental health status,
health service use, and quality of life**

Summary report

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* Due to the unforeseen unavailability of the first author to complete this report, the Australian Centre for Posttraumatic Mental Health, Department of Psychiatry, University of Melbourne, assumed responsibility for the report in May 2013. The final version of the report was revised and edited by Professor Mark Creamer, in consultation with Professor McFarlane, Professor Sim, members of the original research team, and Professor David Forbes and Associate Professor Meaghan O'Donnell.

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1. Background

Since the end of World War II, Australia has contributed to 23 major peacekeeping operations worldwide under the auspices of the United Nations (UN), involving over 34,000 peacekeepers. One consequence of this participation is the potential for long-term mental health sequelae arising from the deployment and, in particular, from exposure to potentially traumatic events (PTEs) such as physical threat to self or others, witnessing human misery and suffering, or handling dead bodies.

Although substantial high quality research has been published internationally regarding mental health outcomes following combat deployments, research on the impact of peacekeeping deployments has been limited. Those studies that have been published have often been characterised by significant methodological problems and short follow-up periods. The three studies of Australian peacekeepers to date were of individual deployments and none of these explored long-term outcomes (1-3). There is an urgent need to better understand the long-term mental health impact of these deployments in order to minimise adverse outcomes and to plan effective prevention, early intervention, and service delivery strategies.

This study reports on the mental and physical health of a sample of Australia's peacekeepers who were deployed on seven UN-sanctioned peacekeeping missions between 1989 and 2002. The selected deployments were: Namibia (1989-1990; UNTAG; N = 613 Australian peacekeepers), Western Sahara (1991-1994; MINURSO; N = 225), Cambodia (1991-1993; UNAMIC/UNTAC; N = 1,215), Rwanda (1994-1995; UNAMIR II; N = 638), Somalia (1992-1996; UNOSOM I/UNITAF/ UNOSOM II; N = 1,480), East Timor (1999; INTERFET; N = 7,970) and East Timor (1999-2002; UNTAET; N = 2,090). The main study findings are in relation to mental health outcomes, including the prevalence of formal psychiatric diagnoses and associated features such as anger, demoralisation, and social isolation. Veterans' reported use of health services is also presented, as well as an examination of the impact of peacekeeping and its sequelae on peacekeepers' quality of life.

2. Study aims

This study was designed to examine the mental health sequelae of peacekeeping in a sample of Australian peacekeepers 10 to 15 years after deployment completion. The primary aim of the study was to provide a profile of the long-term mental health adjustment of Australia's former peacekeepers. Secondary aims were to: (a) Provide a preliminary indication of the physical health of Australia's former peacekeepers; (b) Examine the relationships between pre-deployment, deployment, and post-deployment stressors and current mental health; and (c) Explore health service utilisation and provide a preliminary estimate of the economic burden of mental health conditions in former peacekeepers.

3. Study design, data collection, and analysis

The study involved administering a structured clinical interview and a self-report questionnaire cross-sectionally to randomly sampled Australian peacekeepers who had participated in one or more of the study deployments. Participants were offered the choice of completing the study questionnaire either by telephone interview or online. In order to avoid an excessive burden on participants, peacekeepers who were involved in other health studies at the time of data collection, including the Military Health Outcomes Program (MilHOP) and the Centre for Military and Veterans' Health (CMVH) East Timor Health Study, were excluded. It should be noted the MilHOP exclusion resulted in no serving personnel participating in the current study.

The participation rate, based on the names of those who were initially drawn from deployment lists, was 72% of those who could be contacted (1,484 of the initially drawn 2,247 names). The final sample comprised 1,067 full or partial completers (48% participation rate). Participants were predominantly (95%) males, with an average age of 46.5 years (SD = 8.4 years). Most (78%), had completed either high school or a trade qualification, 81% were partnered, and 75% were working. The majority of participants (92%) were Army, with only 4% each from Navy and Air Force. Nearly half the sample (48%) reported receiving some form of DVA benefit. DVA Gold Cards were held by 22% of participants and DVA White Cards by 28%.

Four Australian comparator samples were identified. An aggregate matched sample was drawn from the 2007 National Survey of Mental Health and Wellbeing (NSMHWB) (4) to provide a civilian comparator. Military comparators comprised the CMVH Deployed Health Studies on the East Timor (1) and Bougainville (5) deployments, the Australian Gulf War Veterans' Health Study (6, 7), and the 'ever deployed' group from the ADF Mental Health Prevalence and Wellbeing Study (8). An internal comparison was conducted by dividing deployments into high and low stress: those which were most likely to have exposed personnel to high levels of stress and those in which exposure to PTEs was likely to have been low. This allocation was made on the basis of interviews with former senior ADF peacekeeper personnel, as well as a review of the available descriptive literature.

The prevalence of psychiatric diagnoses was assessed using the Composite International Diagnostic Interview, Version 3 (CIDI) (9-11). Four diagnostic modules were administered: posttraumatic stress disorder (PTSD), major depressive episode (MDE), generalised anxiety disorder (GAD), and substance use disorders. Suicidal ideation was also assessed using the CIDI. Associated features were assessed with questionnaires including the PTSD Checklist (PCL), a self-report measure of PTSD tied to the DSM-IV symptoms. General psychological health and wellbeing was assessed using the K10 and the General Health Questionnaire (GHQ-12). The Dimensions of Anger Reaction scale (DAR-5), the Demoralization Scale (DS), and the Friendship Scale (FS) assessed anger, demoralisation, and social isolation respectively. Health functioning was assessed using the SF-36 Version 2 and quality of life was assessed with the Assessment of Quality of Life (AQoL). AQoL scores for individuals with specific health conditions were used to estimate the excess cost burden. Other questionnaires covered demographics, service history, exposure to PTEs, medical conditions,

posttraumatic growth, and health service use. (Full references for all measures appear in the Technical Report).

Descriptive statistics are used to provide information on the nature, prevalence and severity of key variables. Key comparisons are explored using tests of significance such as chi-squared, t-tests, analysis of variance, and odds ratios. Univariate analyses were used initially to explore key predictors of disorder, with significant variables then combined in multivariate logistical regression analyses.

4. Study findings

4.1. Deployment history and trauma exposure

Most of the sample (74%) had only ever been deployed on one mission, 19% had deployed twice, and 7% had served on three or more missions. Participants reported high levels of exposure to PTEs on deployment, with the most common being threat of injury (83%) or death (77%), seeing dead bodies (78%), witnessing degradation and misery (72%), and hearing of a friend or co-worker being injured or killed (64%). Causing the death (17%) or injury (20%) of another person were the least reported. In terms of overall life experiences, some of the more common PTEs were transport accident (56%), physical assault (49%), and sudden unexpected death of someone close (41%).

4.2. Mental health: The prevalence of psychiatric disorder prior to deployment

The prevalence of PTSD, anxiety (GAD), depression (MDE), and alcohol use disorders, was assessed using the CIDI. Age of first symptom onset revealed that, prior to their first deployment, the prevalence of PTSD, GAD and MDE in the sample was very low – around one quarter to one third of those found in the civilian comparators. This is not surprising, since the peacekeeper veterans would have undergone fitness for duty checks both at recruitment and at regular intervals during their pre-deployment service. They would be expected to have low rates of both physical and mental health conditions at that point in their careers. Of interest, however, is the finding that alcohol abuse and dependence levels were higher among peacekeepers than in the civilian sample – possibly a reflection of the military sub-culture of the time.

4.3. Mental health: The prevalence of current psychiatric disorder

Unlike pre-deployment levels, however, the prevalence of current (in the past 12 months) disorder in the peacekeeper sample was considerably higher – two to three times that of the comparator samples. The prevalence of CIDI-diagnosed disorders (as well as probable PTSD assessed by the self-report PCL scale) is shown along with comparators where available in Table 1. A total of 30% met criteria for at least one CIDI-diagnosed mental health condition, with 22% having only one diagnosis, 7% having two, and 2% having three or more. This compares with the civilian NSMHWB sample in which only 12% met criteria for a diagnosis, the Gulf War veteran sample in which 22% had at least one diagnosis, and the currently serving ADF sample in which 21% had at least one diagnosis.

Table 1: 12-month CIDI (and PCL) mental health status comparisons, percentages

	Comparators					
	Peace-keepers	NSMHWB	ADF MH prevalence	AGWVHS	CMVH Timor	CMVH B'ville
N	1,025	1,025	31,056	1,456	1,833	2,342
PTSD - CIDI (Interview)	16.8	6.0	8.0	5.1		
- PCL (Self-report)	19.9		3.0	7.9	7.0	6.0
GAD	4.7	2.9	0.8	0.4		
Depression	7.0	2.8	5.5	9.0		
Alcohol abuse	12.0	3.5	2.0	4.3		
Alcohol dependence	11.3	3.6	2.4			
<i>No. CIDI diagnoses</i>						
0	70.1	87.9	79.2	78.0		
1	21.6	9.7	13.1*	14.0		
2	6.8	1.7	7.1	4.0		
3+	1.5	0.8	0.7	4.0		

Note: NSMHWB = National Survey of Mental Health and Wellbeing (matched civilian sample)

AGWVHS = Australian Gulf War Veterans' Health Study

* ADF MH Prevalence Study figures for N diagnoses refer to 'disorder class', not to individual disorders

No. of CIDI diagnoses includes only PTSD, GAD, major depression, and alcohol use disorders

PTSD was diagnosed in a high proportion of peacekeepers – 17% according to the CIDI and 20% according to the self-report questionnaire (PCL) – rates two to three times higher than that found in the comparator military samples. Peacekeepers with PTSD tended to nominate peacekeeping, combat, and witnessing atrocities as the Criterion A event (i.e., the event 'causing' the PTSD). Although not unexpected, this highlights the potential importance of military deployment; despite the fact that participants in the current study reported multiple traumatic events across their lives, it was their military experiences that they were most likely to nominate in the development of PTSD.

Prevalence of GAD and alcohol abuse/dependence was also substantially higher than in the comparator samples, albeit occurring at lower rates than PTSD. Depression, however, was not so clear cut, occurring at rates slightly higher than the serving ADF sample, but lower than that reported in the Gulf War veterans (AGWVHS).

4.4. Mental health: Predicting current psychiatric disorder

It is important to emphasise that in a cross-sectional design of this nature, it is not possible to comment definitively on causation or directionality of any observed relationships and the data should be interpreted cautiously. Many variables are better considered as 'associated features', rather than predictors of, current disorder. With that caveat in mind, however, the most consistent finding was the association between high levels of exposure to PTEs (both deployment related and across the lifespan) and current mental health. While it is possible that this reflects a reporting bias (i.e., those with poor mental health are more likely to remember and report adverse events), it is consistent with other research on the role of stressful life events in the genesis of psychiatric disorder. Number of deployments was a predictor only for depression, with peacekeepers deployed more than once having twice the risk of current depression. Although there was a tendency for participants from the Rwanda and Somalia deployments to report the highest rates of PTSD and GAD, those differences were not significant and there was no significant difference between deployments classified as 'high stress' and those classified as 'low stress' for any disorder. These findings are consistent with the ADF Mental Health Prevalence and Wellbeing Study in demonstrating that it is not the number or type of deployments *per se* that are the most important factors; rather, it is the actual experiences on those deployments that increases risk for subsequent disorder.

4.5. Mental health: Associated features

Unlike the diagnosable psychiatric disorders which were assessed using a structured interview, the associated features were assessed using a self-report questionnaire. Surprisingly, the two measures of general psychological health and wellbeing provided quite different perspectives. Levels of 'caseness' on the GHQ-12 in the current sample were very close in prevalence to those reported in the AGWVHS and in the large UK study of troops returning from the Iraq war. Depending on the cut-off employed, between 22% and 34% were deemed to be likely 'cases'. The K10, on the other hand, revealed that 14% of the peacekeeper sample scored in the very high range, compared with only 3% in the ADF deployed sample, 7% in the East Timor sample, and 5% in the Bougainville sample. People who score in this range have around ten times the population risk of meeting criteria for an anxiety or depressive disorder and 20 times the population risk of ever having made a suicide attempt. Consistent with this, suicidal ideation (assessed using the CIDI) was present in 11% of the peacekeepers, compared with only 4% in the ADF sample and 3% in the civilian comparators.

Severe or extreme anger was reported by around 16% of the sample, 34% reported high levels of demoralisation, and 24% were very socially isolated. Unfortunately, suitable comparators are not available for the first two constructs, although simple observation of the rates indicates that these are problems worthy of attention regardless of their relative prevalence. Severe social isolation, however, occurs at a much higher rate in the peacekeeper sample than in the general community (24% versus 2%). Not unexpectedly, all of these associated features were strongly associated with the presence of diagnosable mental health conditions.

4.6. Mental health: Summary

Taken together, these findings reveal a disturbingly high level of mental health problems in this peacekeeper sample. While around half of the participants appear to be coping well with little or no evidence of psychological dysfunction, around one quarter report moderate levels of mental ill health and vulnerability, with slightly over one quarter (around 30% of the whole sample) reporting more severe diagnosable problems. This level of psychiatric morbidity is only slightly below that of Australia's Vietnam era veterans (12). In comparison with other recent deployments on which research exists, the pattern of symptoms in this peacekeeper population is characterised by high levels of PTSD and substance abuse, with moderate levels of generalised anxiety and depression. Associated features such as anger, demoralisation, social isolation, and suicidal ideation, demonstrate additional risks.

4.7. General health

Although most peacekeepers reported that they were in good, very good, or excellent health, a substantial minority – nearly 35% – reported their general health to be fair or poor. Peacekeepers were nearly three times more likely to report being in fair or poor health than were a male community sample. When asked about specific conditions, over half the sample reported back problems, and over one third reported sleep problems, movement difficulties, allergies, or fatigue. Interestingly, however, on the more objective SF-36 measure, physical health functioning was not significantly below the community average, perhaps suggesting that the reported physical conditions are at the less severe end of severity and are not having a substantial impact on physical functioning. Not unexpectedly, however, all the physical health findings varied with age – younger participants reported better physical health than older participants.

4.8. Health service use

Reported health service use by the peacekeeper sample was high, with 68% having seen a GP in the previous three months, 35% a medical specialist, and 37% an allied health provider. Those with diagnosed mental health conditions were especially likely to have used health services – over 80% had consulted a GP, 32% a psychiatrist, and 20% a psychologist. Only 17% of peacekeepers with a mental health condition had not seen any clinician or therapist in the previous three months. This level of service use among those with mental health problems is substantially higher than in the general population; the NSMHWB revealed that only 28% of men with mental health problems had sought help. One explanation is the greater accessibility to healthcare provided to veterans through the Repatriation system. It may also indicate that repeated efforts to raise awareness of mental health issues amongst veterans have paid off in terms of encouraging them to seek care. It may also indicate that the severity of the mental health problem is greater in peacekeepers compared with those in the general population. This latter point is reinforced by the finding that half of the peacekeeper sample was taking some kind of prescribed medication, with this figure rising to 70% for those with a mental health condition.

Satisfaction with health care was only moderate, with 41% indicating that they were dissatisfied. Those in poor health and those with a CIDI diagnosed mental health condition were more likely to be dissatisfied with their health care. At the same time, ease of access to health care services also appeared to be a factor: those holding a DVA Gold Card (presumably those with worse health) reported higher satisfaction scores than those with a White Card or no DVA health card. This finding, however, may also be influenced by age: older participants (aged over 50 and presumably more likely to have a Gold Card) reported higher levels of satisfaction than younger participants.

4.9. Quality of life

Consistent with the findings regarding mental and physical health, quality of life in the peacekeeper sample was generally inferior to that of the comparable civilian (NSMHWB) sample. While 47% of civilians fell in the top 10% of the possible score range for quality of life, only 22% of peacekeepers scored in this range. Similarly, while only 3% of civilians scored in the bottom 20% of the possible score range, 16% of peacekeepers fell into this category. This compromised quality of life is likely to be explained by the extent of mental and physical health problems in the sample. Indeed, comparisons with the broader Australian population suggest that peacekeepers' health-related quality of life is very similar to that of members of the general community with comparable health status.

4.10. Cost burden

Health economics – estimating the excess cost burden of health disorders – is a well established field of study. Relative reductions in health-related quality of life associated with the presence of health conditions are calibrated against the monetary amounts used in fields such as insurance and health service administration. Although there are uncertainties in the methods used and the assumptions made, the process allows an estimate of the excess cost burden of disease to be calculated for any condition. To our knowledge, this is the first study to use these health-related quality of life scores in an attempt to examine the excess cost burden of illness due to peacekeeping. Although the findings need to be interpreted with caution, they provide a preliminary indication of both individual and aggregate losses from a societal perspective. With that caveat in mind, the estimated excess costs per case per annum are considerable at \$20,000 for those with one mental health condition and \$37,000 for those with two or more mental health conditions. These figures aim to reflect all losses associated with ill health, including health service costs, costs borne by other sectors (e.g., legal costs) and costs borne by the individual (e.g., loss of wages, marital breakdown). Based on the entire population of peacekeepers in Australia, the estimated excess cost of the health impact of peacekeeping was \$582 million per annum. Considered in this light, it becomes clear that the prevention, early intervention, and effective management of the mental health effects of peacekeeping must be a priority not simply with the aim of reducing human suffering (important though that is) but also with the aim of avoiding substantial costs to the Australian community.

5. Study strengths and limitations

The design and implementation of this study is characterised by many strengths. As reflected in the membership of the Advisory Committee, the research aims and design were established following extensive consultation with the Department of Veterans' Affairs, the veteran community, and key researchers in the field from around Australia. The design was methodologically strong, the sample size is impressive for a study of this complexity, and response rates were above expectations. The adoption of both structured clinical interview and self-report questionnaires is consistent with international best practice for this type of research. Through careful selection of measures, compatibility with other relevant key studies was achieved, allowing direct comparison of findings. Data cleaning and analysis procedures were rigorous. In short, this was a methodologically strong, well designed, and conscientiously implemented study.

Several limitations, however, should also be noted. Although common to most studies in this field, they are important to understand in interpreting the data. While response rates were comparable or better in comparison with other studies, the fact remains that a substantial number of those who could have participated did not. There were significant (albeit small) differences between study participants and non-responders in age, socio-economic background and deployment, suggesting that study participants may not have been fully representative of the whole peacekeeper population. Most importantly for the current research question, the mental health status of those who chose not to participate is not known. (It is, however, worth noting that the prevalence in the non-responders would have had to be very small to wipe out the large increases found in the sample; with regard to PTSD, for example, even if none of the non-responders met criteria – which is highly unlikely – the prevalence among peacekeepers would still have been much higher than the comparators). A second limitation is the cross-sectional nature of the study. Although providing a valuable snapshot of the population at this point in time, it does not inform our understanding of the course of these conditions over the period since deployment. More importantly, the cross-sectional design means that data on putative risk and protective factors – such as prior exposure to trauma – must be obtained retrospectively and there is always a danger that memory may be distorted by current mental state. A third cautionary note is that all the data collection – even the structured interview – relies on self report. This is appropriate in that it provides a meaningful comparison with other research. There is also no reason to assume that the person's self report of their symptoms would be any less accurate than a more objective measure (if, indeed, one were available). Nevertheless, it does raise the possibility of participants' answers being influenced by impaired memory, personal motivations, current stressors, and other related factors. Fourth, it is important to emphasise that the study was designed to explore the long-term impact of specific peacekeeping missions. It is not possible to determine the extent to which any outcomes are attributable to the peacekeeping deployments *per se* rather than to military service more generally. It is also recognised that, over the 10 to 25 years since the deployments reported in this study occurred, mental health policy and practice in the ADF and DVA has changed substantially. Thus, caution is required in generalising these findings to the current generation of ADF personnel deployed on peacekeeping missions. Finally, since the results are

interpreted in the context of other samples, it is important to recognise that all the comparator population studies had limitations of their own; results from those studies – and the subsequent comparisons – also need to be interpreted with some caution.

6. Implications

The implications of the study findings are clear and largely consistent with previous findings which have led to initiatives adopted by the ADF and DVA over the last decade in the area of post-deployment health. The key finding is that peacekeeping missions are associated with substantial risk of subsequent mental health problems. The fact that the rates of PTSD were high – substantially higher than those found among currently serving personnel or among other deployment studies – highlights the importance of assertively addressing this issue in current and future peacekeeping deployments. The suggestion sometimes heard anecdotally that peacekeeping missions are easier, less stressful, and less damaging than combat deployments is not supported by the current findings. The fact that depression rates were broadly comparable with other deployment studies suggests that the specific element of trauma exposure should be central to interventions with this population, whereas more general mental health prevention and intervention strategies may be applicable across all military deployments (including for peacekeepers). Although the field of prevention – building psychological resilience prior to deployment – is still in its infancy, it is certainly a goal worthy of pursuit. In the meantime, however, concentrating on effective screening, early recognition, and easy early access to evidence-based care must remain a high priority. Although initiatives are in place to address these issues, the current data emphasise the importance of ensuring that service delivery in reality matches the policy platform.

Leading on from the area of early intervention, the current data highlight the importance of effective recognition and management of existing chronic conditions. The evidence suggests that much is being done – health care use, particularly in mental health, is high among peacekeeper veterans. Although service use is less among those without a Gold or White Card, the findings may nevertheless reflect the success of recent psychoeducation strategies and the improved mental health literacy that was driven in large part by the advocacy of the Vietnam era veterans. Less clear is the exact nature of mental health services being provided to peacekeeper veterans. The fact that a large proportion of peacekeepers continues to suffer disorders such as PTSD raises the question of whether they are receiving the best possible evidence-based care. There may be a case for some kind of clinical audit of services to ensure that they are in line with best practice treatment guidelines for these conditions. The level of suicidality, with around 10% of peacekeepers admitting to suicidal ideation, is of particular concern. It may be worth considering a strategy to specifically target existing mental health and suicide prevention programs at this group. Such interventions would consider not only the high prevalence conditions, but also associated features such as anger and social isolation (both of which were strongly associated with suicidal ideation in the current study).

A third implication of the current findings is that of service planning for the future. Given the duration of illness, it is unreasonable to expect substantial drops in disorder prevalence over the

coming years. Thus, two fifths of Australia's peacekeepers are likely to continue to have a need for some kind of mental health care and support, even if only at a low intensity. As this group continues to age, they will present particular challenges for care in terms of both physical and mental health. Budgetary and service development projections should bear this in mind. The fact is that the burden of mental health problems in Australia's peacekeeper veterans – in terms of both economic and human costs – is, and will remain for the foreseeable future, substantial.

7. Conclusions

This study of Australia's peacekeeping veterans has demonstrated substantial negative impacts on both physical and mental health for a substantial minority of the population. Rates of PTSD and substance use are considerably higher than those following other recent deployments, while rates of depression and generalised anxiety are comparable. A range of associated features, such as anger, demoralisation, suicidality, and social isolation are also common, representing important risk factors for future problems.

The results highlight the need for ongoing vigilance in this area. It is incumbent upon those with responsibility for the care and wellbeing of current and past members of the Defence Force to ensure that prevention, early intervention, and effective management of established disorders is of the highest possible standard. The potential savings, in terms of both economic and human costs, are considerable.

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