

INTRODUCTION

Yes, we ask an inordinate amount from our people and Australia needs to understand that. We are placing young men and women in some of the most dangerous, difficult and life-changing situations you can imagine.

And those who are wounded, those who are killed, their families face equal challenges. We cannot underestimate the damage that we might be doing to our people through constant stress. We must do everything we can to help them out psychologically, with medical care, with everything. These people are putting their lives on the line, they do this without question. They don't flinch and when they're hurt, when they're hurting as they will down the years, we've got to keep stepping up as a society and look after them.

Major General John Cantwell, AO, *Four Corners*, ABC, 2010

Mental health and wellbeing in the Australian Defence Force

Over the past decade, the demands placed on the ADF have steadily increased due to the level of operational deployment in Australia, our region and the Middle East. Currently, in a given 12-month period, up to 12,000 members of the ADF will be in the operational deployment cycle – that is preparing, deploying or transitioning home.

ADF personnel are deployed to locations that include Afghanistan, Iraq, East Timor and Solomon Islands, as well as making contributions to the United Nations and other peacekeeping operations around the world. There are also personnel ready to respond to natural disasters, conducting border protection operations on mainland Australia and in our maritime and air approaches, and providing assistance to Indigenous communities in remote regions (Houston, 2008). Within the ADF workforce, almost half (43%) have been deployed multiple times.

These levels of high operational tempo not only expose ADF personnel to a range of occupational risks and hazards while on deployment, but also place significant pressure on those supporting the 'raise, train and sustain' functions. Furthermore, the high operational tempo is set in a broader context of ongoing global financial uncertainty, resulting in the need for the ADF to operate as efficiently as possible and to implement major changes through the Strategic Reform Program. Against this background, there is growing concern from government, command, service personnel and the community about the impact of the recent level of tempo of deployment and occupational stress within the ADF on the mental health of serving personnel.

A substantial body of research has been provided by all our major allies, namely the United States, Canada, the United Kingdom and the Netherlands, on the psychological and physical health of their defence force members, particularly those deploying to the Middle East Area of Operations. Understandably, there is public concern about the comparative rates of injury among our allies, and it is important for Defence to be able to give an informed response about ADF members. This study emphasises the commitment of Defence to developing a comprehensive understanding of the mental health and wellbeing of personnel who voluntarily enlist to serve Australia.

In 2002, Defence, consistent with the national mental health reform agenda (Commonwealth of Australia, 2008; Department of Defence, 2002, 2007), identified the need to develop a mental health strategy to improve service planning and provision in the ADF. The strategy had six initiatives:

- Integration and Enhancement of Mental Health Services
- Mental Health Research and Surveillance
- Alcohol, Tobacco and Other Drugs Program
- Suicide Prevention Program
- Resilience Building Program
- Critical Incident Mental Health Support.

A review of the progress of the ADF mental health strategy was conducted by Professor David Dunt in 2009. He identified a key component of the strategy that was missing: an understanding of ADF mental disorder prevalence rates. He noted that ADF prevalence rates were likely to differ from those of the general Australian population, but that determining the degree would be difficult due to the 'countervailing effects of the healthy worker effect and high occupational stress' (Dunt, 2009, p. 1).

The 'healthy worker effect' comes from the fact that, during recruitment, the ADF takes steps not to enlist individuals with pre-existing disorders. It then provides quality and accessible health services to all of its members. In addition, there is an occupational health service in the ADF that provides quality care at no cost to ADF members and, following deployment, ADF members are extensively screened to ensure they receive treatment if they need it. The ADF workforce should, therefore, be healthier than the general community.

On the other hand, members of the ADF are at risk of developing mental disorders, as they are exposed to a range of occupational stressors – for example, exposure to traumatic events and extended periods of time away from their primary social support networks. As a consequence, despite the existence of programs to mitigate these risks, it is important to determine the nature and impact of mental disorders within the ADF.

Comparison with the Australian community

The highest levels of government have recognised that accurate estimates of the prevalence of mental disorders are required for policy and service delivery in the Australian community. Two studies were conducted by the Australian Bureau of Statistics, a decade apart, which estimated the prevalence of mental disorders in the Australian population. These rates cannot be directly extrapolated to the ADF, however, due to the unique demographics of its workforce (Slade, Johnston, Oakley Browne, Andrews, & Whiteford, 2009).

The most recent National Survey of Mental Health and Wellbeing found that one in five Australians aged 16–85 years had experienced a mental disorder in the previous 12 months, or the equivalent of 3.2 million Australians (Slade et al., 2009). The survey found that the prevalence rates of any disorder were higher in the youngest age group and among females.

The higher prevalence of mental disorders in young adults has particular significance for the predominantly youthful ADF population. A natural pattern of emergence of mental disorders occurs with the neurodevelopmental effects of maturation of the brain that places young adults at risk (McGorry, 2011) even if they are healthy at the time of their recruitment. Hence, screening of young adults at the time of recruitment has only limited capacity to minimise the prevalence of mental disorders in the ADF. In addition, substance use disorders are particularly prevalent in the younger population (13% of the 16–24 age group have a substance use disorder), which poses a further risk to the ADF.

There are many considerations other than just the risk of younger age for mental disorders that prevent direct extrapolation about the ADF from the broader community. For example, the majority of ADF members are male, and men generally have lower rates of the more common disorders than women, other than substance abuse.

The National Survey of Mental Health and Wellbeing included a category, 'serving in the Australian Defence Force', which reported a prevalence rate of 16.5% for any 12-month mental disorder. However, this category included not only serving personnel but also those who had overseas qualifying service and former Australian Defence Force members, so it is not directly applicable to the ADF.

In summary, an understanding of national community rates of mental disorders is not sufficient to determine service delivery or intervention requirements in the ADF. This is supported by recommendation 12.1 of the Dunt Review (Dunt, 2009), which states that:

The conduct of a prevalence survey of mental health conditions in the ADF should be a high priority. Different options exist and the aim should be to choose the one that best produces robust, useful data and at reasonable cost.

Epidemiological studies of other defence populations

Internationally there have been relatively few epidemiological studies involving military populations, which limits the ability to directly extrapolate ADF rates. The sparseness of this research contrasts with the extensive research that has been done into the effects of deployment and the prevalence of post-traumatic stress disorder.

The limitation of studies to date has been that they use self-report surveys; the only interview-based study of a currently serving defence force to date examined the Canadian Forces (Sareen et al., 2007). The study systemically surveyed a stratified sample of 5,154 regular serving members, using the structured World Mental Health Composite International Diagnostic Interview (CIDI), version 2.1, at the same time as a national mental health survey was conducted by Statistics Canada. The survey demonstrated a prevalence of any mental disorder of 14.9% (using DSM-IV criteria) (American Psychiatric Association, 1994), but only examined the prevalence of a limited number of disorders. The most prevalent conditions were:

- major depression (6.9%)
- alcohol dependence (4.8%)
- post-traumatic stress disorder (2.3%).

The Canadian study also examined the risk factors for mental disorder, including the impact of peacekeeping missions, combat and exposure to atrocities and massacres. The study demonstrated that peacekeeping, in contrast to combat, tended to have a positive effect on mental health except for post-traumatic stress disorder.

Other cohort studies of US and UK forces have used self-report measures, which limits the interpretation of their conclusions. The Millennium Cohort Study is in the process of prospectively examining, over a 21-year period, three panels of US service members. An examination of the first wave of recruitment of 76,476 individuals found that the presence of any disorder in the population was 18.3% (Riddle et al., 2007; Ryan et al., 2007). The most prevalent conditions were:

- alcohol abuse (12.6%)
- major depression (3.2%)
- post-traumatic stress disorder (2.4%).

Young males in active combat roles had the highest rates of alcohol-related problems. The rates of post-traumatic stress disorder differed according to the region of deployment – 12% of Iraq veterans had this condition in contrast to 6.2% of Afghanistan veterans.

The King's Centre of Military Mental Health Research (Hotopf et al., 2006) has conducted extensive studies, using self-report measures, of the impact of deployment on British forces. These data identified potential mental disorders in 19.7% of UK forces using the General Health Questionnaire (Fear et al., 2010).

The impact of deployment on mental health

Examination of the impact of deployment on currently serving personnel in the military forces of other countries has provided a range of valuable insights into the prevalence of potential mental disorders among Australia's allies. Only one published study to date has investigated the prevalence of mental disorders due to warlike deployment in the Australian Defence Force, but it was primarily a study of naval personnel. It found that 31% of those deployed to the first Gulf War developed a psychiatric disorder following their deployment, using the CIDI to provide diagnoses of mental disorders. This rate contrasted to a rate of 21% for a DSM-IV disorder in the comparison group who could have been deployed (Ikin et al., 2004).

There have, however, been a number of other studies, particularly among the US and UK populations. One influential report examined US members before their deployment, and then again after their return from Iraq or Afghanistan (Hoge et al., 2004). Prior to deployment, a moderate or severe mental disorder was detected in 14.3% based on the Patient Health Questionnaire and the Posttraumatic Stress Disorder Checklist definitions of disorder. After deployment to Afghanistan, a rate of 17.1% was recorded, in contrast to 19.5% among Iraq veterans.

A much larger US study examined Afghanistan veterans (N=16,318) and veterans from Iraq (N=222,620) and other locations (N=64,967) (Hoge, Auchterlonie, & Milliken, 2006). The study used an abbreviated measure for post-traumatic stress disorder as well as a measure of depression. Nineteen per cent of Iraq veterans, 11.3% of Afghanistan veterans and 8.5% of veterans of other deployments reported a mental health problem. The rate of post-traumatic stress disorder in the Iraq veterans was 9.8% compared with 4.7% in the Afghanistan veterans.

The King's Centre of Military Mental Health Research has published a number of reports on the UK armed forces. The most recent report examined a cohort of 9,990 veterans and reported a prevalence of 4% for post-traumatic stress disorder using the Posttraumatic Stress Disorder Checklist. In addition, 19.7% of the population

were identified as having any mental disorder using the General Health Questionnaire and 13% were identified as abusing alcohol based on the Alcohol Use Disorders Identification Test (Fear et al., 2010). The authors concluded that for regular personnel, an effect of deployment to Iraq or Afghanistan on probable post-traumatic stress disorder and common mental disorders was not found. A modest effect of deployment on alcohol consumption, however, was detected.

A substantial benefit of the methodology of the UK study was the use of a comparison group who had not been deployed to the Middle East Area of Operations (MEAO). Previously, the King's Centre of Military Mental Health Research group had published eight papers describing the cohort in detail (Hotopf et al., 2006). The UK study found that 69% of the comparison groups not deployed to the MEAO had other deployments, including during the Falklands War and the first Gulf War in 1991, and to Northern Ireland and Sierra Leone.

The ADF Mental Health Prevalence and Wellbeing Study provided an opportunity to investigate mental disorder in both a deployed group and a non-deployed comparison group in an Australian context.

The ADF Mental Health Prevalence and Wellbeing Study

The 2010 ADF Mental Health Prevalence and Wellbeing Study was designed to establish the prevalence of mental disorders in the Australian Defence Force. To support service delivery and intervention strategies, the study also examined risk and protective factors. An understanding of these factors will allow Defence to further develop an occupational military mental health and wellbeing framework to support its members. The study provides the foundations for the design and evaluation of the framework. In addition, existing programs in the ADF will need to be assessed in light of the study's findings.

As part of the Mental Health Reform Program resulting from the Dunt Review, Defence is initiating a comprehensive occupational approach to mental health service delivery (Adler, Bliese, & Castro, 2011; McFarlane & Bryant, 2007). This approach acknowledges the importance of both prevention and evidence-based treatment in maintaining the mental health and wellbeing of ADF members. Fundamental to strengthening resilience and enabling recovery in a military environment is a shared responsibility for mental health and wellbeing between command, individual ADF members and the health care system. An understanding of the burden of disorder, as well as occupational risk and protective factors, will not only inform new service development and prioritisation but will also enable assessment of the efficacy of existing initiatives.

Study sample

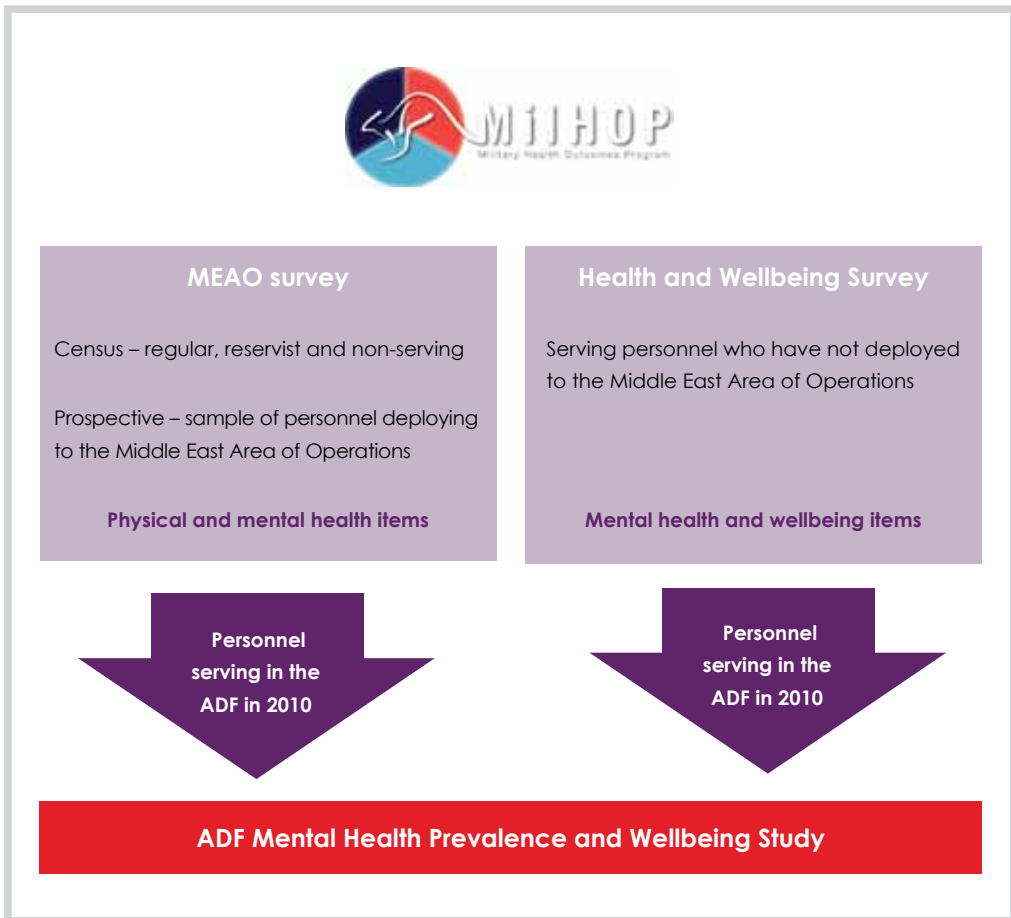
The 2010 ADF Mental Health Prevalence and Wellbeing Study measured mental health problems and psychological distress in a representative sample (N=50,049) of currently serving ADF personnel from regular Navy, Army and Air Force personnel. Trainees and reservists were not included in the sample. The study included all regular ADF personnel who completed the survey between 23 April 2010 and 31 January 2011.

The sample was made up of two mutually exclusive subpopulations (see Figure 1.1). Subpopulation 1 comprised ADF personnel who had been deployed to the MEAO. Subpopulation 2 comprised ADF personnel who had never been on operational

deployment or personnel who had been deployed to an operation other than the MEAO.

Subpopulation 1 came from a broader MEAO study of both physical and mental health (Census and Prospective), which was conducted by the Centre for Military and Veterans' Health (University of Queensland and University of Adelaide node). Subpopulation 2 came from the Health and Wellbeing Survey, which focused primarily on the mental health and wellbeing of all ADF members who had not been deployed to the MEAO. The Centre for Traumatic Stress Studies at the University of Adelaide worked in collaboration with the Directorate of Strategic and Operational Mental Health in Joint Health Command. Subpopulation 1 and subpopulation 2 were combined to create the Mental Health Prevalence and Wellbeing Study dataset.

Figure I.1: Data sources for the 2010 ADF Mental Health Prevalence and Wellbeing Study



As at 31 January 2011, 52.5% (26,281) of ADF personnel had consented to participate in the study, 8.6% (4,293) had declined to participate, and 38.9% (19,475) had not responded. The breakdown of individuals with enough data to be included in the survey is summarised in Table I.1. As the population characteristics are known

(that is, sex, Service, medical employment classification status and deployment history), it is possible to compare personnel who responded to the survey with personnel who did not, allowing weighting of the data to provide estimates of prevalence that are representative of the entire serving regular ADF.

Table I.1: Response rates by service for the Mental Health Prevalence and Wellbeing Study

	Population	Respondents	Rate
Total ADF	50,049	24,481	48.9%
Navy	11,612	5,392	46.4%
Army	25,356	11,429	45.1%
Air Force	13,081	7,660	58.6%

The characteristics of respondents included:

- Sex – consistent with the ADF population, the sample was predominantly male (84.1%, versus 15.9% for females), although ADF females were more likely to respond than ADF males.
- Service – 22% of survey respondents were Navy, 46.7% were Army and 31.3% were Air Force. When the different Services were compared, Air Force personnel were most likely to respond and Army personnel were least likely.
- Age – the response rates were lower in the younger age groups. This was particularly notable among those aged between 18 and 27.
- Marital status – ADF personnel who were married were more likely to respond. Married personnel made up 77.1% of respondents, in contrast to 62.9% of the overall ADF who were married.
- Medical employment classification (MEC) – ADF personnel who were MEC 1 were slightly under-represented in the respondent group (61.1%) compared to the total ADF population (65.6%) classified as MEC 1. ADF personnel who were MEC 2 and MEC 3 were slightly over-represented.
- Rank – ADF personnel in other ranks had a significantly lower response rate. Only 19.7% of other ranks responded, compared to 31.4% of other ranks across the ADF. In contrast, non-commissioned officers were more likely to respond.
- Deployment and education – neither had much impact on the response rates.

For more details on the demographic characteristics of respondents and non-respondents, see Annex B.

Study design

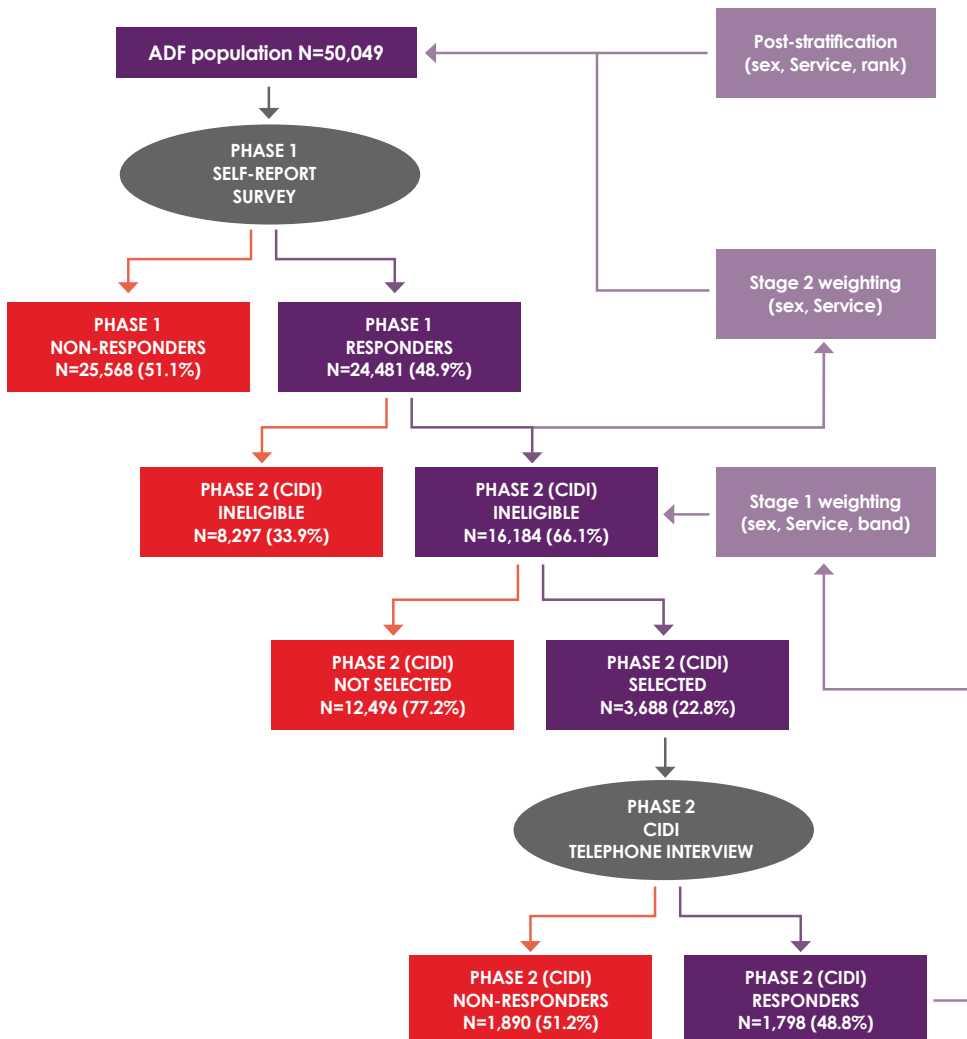
The study used a two-phase design. This approach to epidemiological research has many strengths and is well accepted in the investigation of the prevalence of mental disorders (Salim & Welsh, 2009). The design of the study optimised the information from another questionnaire-based study that was already being conducted on veterans who had been deployed to the MEAO (see Figure I.1), which could be easily extended to allow prevalence estimates of the entire ADF.

The first phase aimed to investigate the levels of psychological symptoms through a questionnaire using a range of self-report measures, including those examining common symptoms of psychological distress, post-traumatic symptomatology and alcohol use. The self-report instruments used have limitations, however, in providing precise information about the diagnostic nature of disorders, their incidence and the date of onset (see annexes A and C).

The two-phase design allowed a targeted second phase, which used a structured diagnostic interview based on the questionnaires on a subsample of respondents. The second phase provided an efficient method of capturing further information and substantially increased the quality of the information gained from the study.

The first phase allowed the selection of a stratified sample of high scorers for interview, which increased efficiency by limiting the number without a disorder. The Phase 2 sample was then weighted to represent the entire ADF (see Figure 1.2).

Figure 1.2: ADF Mental Health Prevalence and Wellbeing Study – two-phase design and weighting process



The two-stage weighting process, in combination with the 48.9% response rate and oversampling of high scorers, enabled the study to provide valid estimates of prevalence, which minimises the chance of random error.

The interview used was the Composite International Diagnostic Interview (CIDI), a widely accepted instrument in psychiatric epidemiology. This instrument has been used in at least 28 other countries, as well as in the Australian community as part of the World Mental Health Survey (Kessler & Üstün, 2004). The response rates and methods of recruitment and stratification are set out in Annex A.

Study goals

Table I.2 provides a summary of the three major goals of the ADF Mental Health Prevalence and Wellbeing Study.

Table I.2: Goals of the ADF Mental Health Prevalence and Wellbeing Study

Goal 1: Prevalence – Establish ADF baseline prevalence rates of mental disorders in order to target mental health services and identify high-risk groups	
Goal 2: Detection – Refine methods for detecting mental disorders in ADF populations	
Goal 3: Occupational issues – Explore the impact of occupational stressors on the mental health and wellbeing of the ADF population	
Predictive factors	Wellbeing outcomes
Deployment history	Help seeking
Trauma exposure	Resilience
Level of social support	Physical health
Bullying	Mild traumatic brain injury
Recognition of service	Quality of sleep
Stigma	Level of anger
Barriers to care	Family relationship
Dietary supplements	Support networks
Caffeine and tobacco use	Quality of life

The first goal of the study was to establish baseline prevalence rates of mental disorders using the criteria of the International Classification of Diseases, 10th revision (ICD-10) (American Psychiatric Association, 1994; World Health Organization, 1992). The primary focus of this survey was to examine the following categories of disorder:

- affective disorders – mild, moderate and severe depression, dysthymia and bipolar affective disorder
- anxiety disorders – panic disorder, panic attacks, agoraphobia, simple phobia, social phobia, generalised anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder
- alcohol disorders – alcohol harmful use and alcohol dependence.

The second goal of the study, using the stratified sample, was to establish the optimal cut-offs for the self-report questionnaires routinely used in the ADF. For an instrument to screen disorders adequately, its psychometric properties and the optimal cut-offs

for the population of interest must be determined. This is achieved by calibrating test scores against a 'gold standard' diagnostic interview. The study therefore examined the psychometric performance of the three instruments most commonly used in the ADF against the CIDI.

The third goal of the study was to examine, through self-report measures, the impact of occupational stressors that have been shown in the literature to be either risk or protective factors for mental disorders (Adler et al., 2011).

Strengths and limitations of the study

The major strength of the Mental Health Prevalence and Wellbeing Study is that it is the first comprehensive examination of mental health in the serving population of the ADF. It establishes baseline data for the ADF that will provide an invaluable resource for understanding service delivery requirements and allowing Defence to develop targeted mental health and wellbeing programs for ADF personnel. The findings of the study will assist in targeting the initiatives in the Mental Health Reform Program. Priority has therefore been given within this report to informing the development of the 2011 ADF Mental Health Strategy.

Methodologically, the main strength of the study lies in its two-phase design, which provided estimates of the prevalence of common mental disorders for currently serving ADF personnel. Using this design, the prevalence of disorder in a subsample of high scorers was weighted back to represent the entire ADF, based on a stratification process that used the CIDI (Kessler & Üstün, 2004). The stratification approach, whereby a larger proportion of high scorers were selected for interview, decreased the possible error in making prevalence estimates by ensuring the accuracy of diagnostic assessment in the group in more of those likely to have a disorder. Second, due to the fact that the approach initially screened a large proportion of the ADF population before they were selected for interview, the potential for error was further reduced. A further advantage of conducting a prevalence study in the ADF was that the demographic and health status of the ADF members who did not respond at each phase was known and therefore could be taken into account in the back-weighting of the sample.

Above and beyond the prevalence of disorders, the study also ascertained when treatment for a mental health problem was first sought, and when the participants last reported the symptoms of disorders. These data therefore have the potential to provide valuable insights into the life course of disorders in ADF members and the points at which individuals choose to seek treatment. Equally, the survey highlighted and explored the range of barriers to seeking care.

Mental disorders have the capacity to disrupt an individual's work performance, so the study investigated the number of total and partial days that individuals were unable to function due to a mental health problem. The burden of disease has major implications for the costs to an organisation such as the ADF that are attributable to mental illness.

Another strength of the study is the fact that research into warlike service has often occurred retrospectively. The United States has been actively promoting the conduct of epidemiological research to inform policy and intervention since the start of the war in Iraq (Adler et al., 2011), resulting in the current wealth of deployment-related research that can directly influence current US policy. The ADF Mental Health Prevalence and Wellbeing Study was conducted at a time when Australia had been involved in warlike service for more than a decade and currently had soldiers deployed in

combat, making the findings directly applicable not only to current ADF policy and programs, but also able to contribute to the development of Department of Veterans' Affairs services.

A limitation of the study is that several categories of mental disorder were not explored. The least common (or lowest prevalence) disorders such as schizophrenia, as well as the somatoform disorders, eating disorders, impulse control disorders and personality disorders, were not investigated. These disorders are generally more difficult to identify using structured diagnostic interviews. Certain disorders were also excluded because of concerns about the duration of the interview and the demands made of the respondents.

A further group of disorders that were not included in the study were those caused by substances other than alcohol. These substances were not included because they are prohibited in the ADF and any detection of usage can be a reason for dismissal from the Services. The probability of accurate prevalence estimates was therefore low because ADF members were unlikely to give accurate and truthful responses about their use of such substances.

The study was limited to currently serving members of the ADF and did not explore the mental health issues of reservists, trainees or discharged veterans. This does not, however, discount the importance of these issues in these populations. The deployment health studies being conducted for the ADF by the Centre for Military and Veterans' Health will address reserve and discharged veteran issues, while the ADF longitudinal study evaluating resilience will address trainee issues.

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