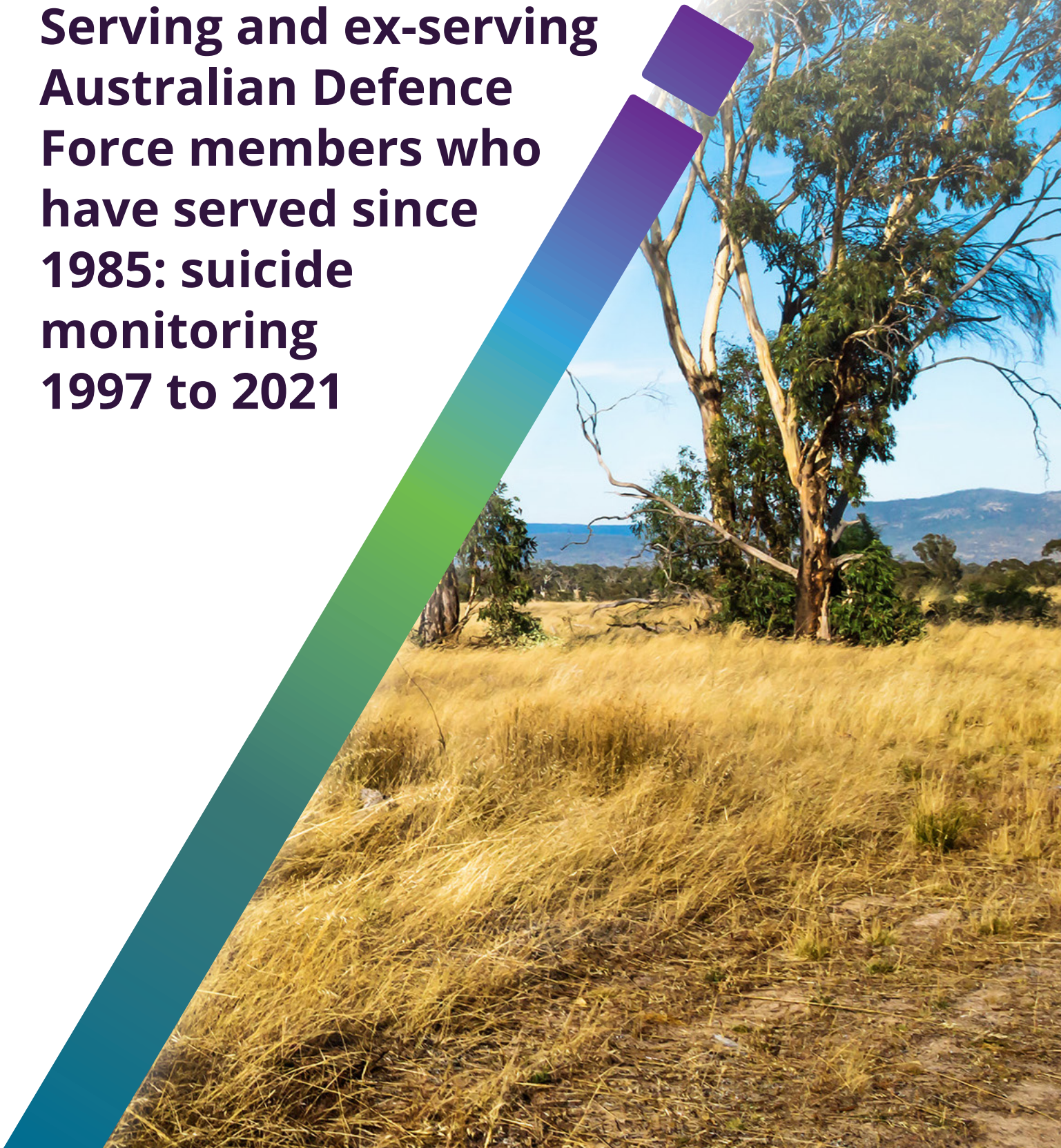




Australian Government
Australian Institute of
Health and Welfare

AIHW

**Serving and ex-serving
Australian Defence
Force members who
have served since
1985: suicide
monitoring
1997 to 2021**



**Serving and ex-serving
Australian Defence Force members
who have served since 1985:
suicide monitoring 1997 to 2021**

Australian Institute of Health and Welfare
Canberra

Cat. no. PHE 327

The AIHW is an independent statutory Australian Government agency producing authoritative and accessible information and statistics to inform and support better policy and service delivery decisions, leading to better health and wellbeing for all Australians.

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**Please note that there is the potential for minor revisions of data in this report.
Please check the online version at www.aihw.gov.au for any amendments.**

Reader Caution

Viewing this data

Caution: Some readers may find parts of this content confronting or distressing.

Please carefully consider your needs when reading the following information about suicide. This report contains information on numbers and rates of death by suicide for serving and ex-serving members of the ADF. This report may be distressing to some readers.

If this material raises concerns for you, support is available. Please contact Lifeline on 13 11 14, or Defence All-hours Support Line on 1800 628 036, or [Open Arms - Veterans and Families Counselling](#), available free of charge, 24 hours a day, 7 days a week, or [see other ways you can seek help](#).

The information included here places an emphasis on data, and as such, can appear to depersonalise the pain and loss behind the statistics. The AIHW acknowledges the individuals, families and communities affected by ADF member and veteran suicide each year in Australia.

The AIHW supports the use of the [Mindframe guidelines](#) on responsible, accurate and safe suicide and self-harm reporting. Please consider these guidelines when reporting on statistics on the monitoring of suicide and self-harm.

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Summary

This is AIHW's sixth annual report on suicide among permanent, reserve, and ex-serving ADF members ('member' is used throughout to refer to those who are serving and those who are ex-serving). This report includes those with at least one day of service from 1985 to 2021, with the suicides monitored over the period from 1997 to 2021. This cohort and monitoring period have been expanded to include the latest year of available data over last year's report. The general patterns, including rates of suicide and comparisons with the Australian population, are similar to previous AIHW reports.

Further information on the veteran population scope and expanded monitoring period can be found in the [Technical notes](#).

Permanent and reserve males have a lower risk of suicide >	Permanent and reserve males are about half as likely to die by suicide as Australian males (49% and 45% lower respectively).
Ex-serving males and females have an increased risk of suicide >	Ex-serving males are 26% more likely to die by suicide than Australian males, and ex-serving females are 107% more likely (or about twice as likely) to die by suicide than Australian females. However, rates vary within the subpopulations of the ex-serving cohort.
Males who separate voluntarily have similar rates of suicide to the Australian population >	The suicide rate of ex-serving males who separated voluntarily is similar to the general Australian population as measured by the age-adjusted suicide rate.
Males who separate for involuntary medical reasons have an increased risk of suicide >	The suicide rate for ADF-ex-serving males who separate for involuntary medical reasons is around 3 times the rate of those who separate voluntarily (67.1 and 21.5 per 100,000 population per year respectively).
Younger age groups have an increased risk of suicide >	Ex-serving males under 50 were more likely to die by suicide than those aged over 50 years (36.8 and 19.8 per 100,000 population per year respectively).
Those who separate as officers have lower rates of suicide >	The suicide rate for ex-serving males who separated as officers is about half the rate of those who separated at other ranks (16.1 and 33.2 per 100,000 population per year respectively).

Most ADF members who separated for involuntary medical reasons were DVA clients >

The majority of ex-serving males and females who separated for involuntary medical reasons, a group likely to have increased support needs, were DVA clients.

Article – Serving and ex-serving Australian Defence Force members: Suicide and select causes of death, 1997 to 2021

This monitoring report is accompanied by a separate article that presents information about suicide and other causes of death from 1997 to 2021 among ADF members who have served since 1985.

Caution: Some readers may find parts of this article confronting or distressing as it contains information on methods used for suicide. As such, and in line with the [Mindframe guidelines](#) on responsible and safe suicide and self-harm reporting, access to the report has been limited to individuals from the Australian Government, research bodies, and tertiary education institutions. Requests received from others are unlikely to be approved unless a compelling reason is provided. Please consider your need to read this article. To request access to this article, please email communications@aihw.gov.au and provide the purpose of the access request.

Help or support

If you need help or support, please contact:

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- [Open Arms Suicide Intervention](#)
- [Defence All-hours Support Line \(ASL\)](#) – Phone: [1800 628 036](tel:1800628036)
- [Defence Member and Family Helpline](#) – Phone: [1800 624 608](tel:1800624608)
- [Defence Chaplaincy Support](#)
- [ADF Mental Health Services](#)
- [Lifeline](#) – Phone: [13 11 14](tel:131114)
- [Suicide Call Back Service](#) – Phone: [1300 659 467](tel:1300659467)
- [Beyond Blue Support Service](#) – Phone: [1300 22 4636](tel:1300224636)

For information on support provided by DVA, see:

- [Mental health support services](#)
- [Free mental health care for veterans](#)

Introduction

Background

In 2014 the Australian Department of Veterans' Affairs (DVA) and Australian Institute of Health and Welfare (AIHW) established a partnership to build a comprehensive profile of the health and welfare of Australia's veteran population. AIHW has worked with the Department of Defence (Defence) to link information from Defence personnel systems to a variety of health and welfare data to better understand the veteran population. This includes analyses on cause of death, use of health services and pharmaceuticals, and use of homelessness services. In 2017, the Australian Government responded to the Senate Inquiry Report, *The Constant Battle: Suicide by Veterans* by committing to provide an annual update on the levels of suicide among permanent, reserve, and ex-serving ADF members. Additionally, the National Mental Health Commission has highlighted the necessity of evidence-based policy advice to suicide prevention across all levels of Government (NMHC 2022). This AIHW report is the sixth annual update reporting the levels of suicide among ADF members.

The first 3 reports included ADF members who served from 2001 based on the availability of information at that time from the Defence Personnel Management Key Solution (PMKeyS), which was launched on 1 January 2001. For the fourth report, published in 2021, DVA commissioned AIHW to investigate the feasibility of using data from earlier Defence personnel systems to build a more comprehensive picture of the ex-serving population. The Department of Defence supported this research by compiling records from historical systems. After extensive investigation and validation of data sources, a population study cohort based on all ADF members with at least one day of service since 1 January 1985 was established and included for subsequent analyses. More information about this process is contained in the [Technical notes](#).

AIHW acknowledges that the data presented in this report represent human lives and we acknowledge all of those serving and ex-serving ADF members who have died by suicide. We also acknowledge all of those who have been affected by suicide. We are committed to ensuring our work continues to inform improvements in mental health, and suicide awareness and prevention.

What is included in this report?

This report includes information on suicide deaths among ADF members who have served at least one day since 1 January 1985 and have died by suicide between 1 January 1997 and 31 December 2021.

In this report, the term 'ADF members' collectively refers to the 3 categories of: 'currently serving permanent', 'currently serving active and standby reserves', and 'ex-serving' members (see Box 1). These 3 ADF service status groups will be referred to as permanent, reserve, and ex-serving for the remainder of this report.

As of 31 December 2021, around 385,000 Australians had served at least one day in the ADF between 1 January 1985 and 31 December 2021. Of these, approximately 368,000 were alive, comprising 60,000 permanent, 38,700 reserve, and 269,000 ex-serving members. Box 2 below gives more information on the ADF population used in this report and how it compares to the Australian population.

Information in this report is presented by service status, age, sex, service, rank, length of service, time since separation and reason for separation. Other factors were investigated for inclusion (namely operational experience, unit, location and occupation) but were excluded from reporting due to data limitations, low frequency of occurrence, and high frequency of movement by personnel. Further details can be found in the [Technical notes](#) section.

It should be noted that the female ADF cohort is smaller than the male cohort and, in general, suicide rates for females in the Australian population are lower than that of males¹. As such the confidence intervals (CIs) for statistics relating to female ADF members in this report are wide, meaning that there is less certainty in the accuracy of the calculated values. This affects our ability to detect statistically significant differences between the female ADF cohorts, and the overall Australian female cohort. As a result, caution should be taken in interpreting these data.

This year, the monitoring report includes a special in-focus chapter on DVA clients. This in-focus chapter presents information about interactions with DVA from 2002 to 2021 by Australian Defence Force (ADF) members who have served since 1985. The chapter provides a profile of DVA clients and deaths by suicide are reported.

A separate web article further examining suicide and select causes of death among ADF members who have served since 1985 is available on request and with approval by AIHW.

¹ For more information about deaths by suicide among the Australian population, see [AIHW Suicide & self-harm monitoring](#).

Box 1: Who is included in this report?

- **Permanent:** ADF members serving in a full-time capacity in the Royal Australian Navy (Navy), Australian Army (Army) or the Royal Australian Air Force (Air Force) on or after 1 January 1985, and serving in a permanent capacity on 31 December 2021 or on the date they died.
- **Reserve:** ADF members who were in the reserve forces for the Navy, Army, or the Air Force on or after 1 January 1985, and were in the reserve forces on 31 December 2021 or when they died. Many members leaving full-time service transition to the reserves for a minimum of 5 years. The service status 'reserve' includes members with a wide range of relationships to the ADF. It includes personnel who have transitioned from full time service as well as both those who joined and have served solely in reserve capacity. Some reserve members may serve with enduring regular employment (active reserves), while others may not render service in any capacity (standby reserves).
- **Ex-serving:** ADF members who were in the permanent or reserve services between 1 January 1985 and 31 December 2021 who subsequently transitioned from Defence.

Each release updates previously published numbers of suicides to reflect updates to the source data. The main reasons for changes to previously published results are:

- Updating the data to include the most recent year's population and deaths.
- A lag in cause of death information for more recent years of data, where cause of death is finalised in following years.
- Revisions to cause of death data by the Australian Bureau of Statistics (ABS).
- Improvements in information available to the study.

More detail on these reasons for changes to previously published information is provided in the [Technical notes](#).

Box 2: The ADF population with at least one day of service since 1 January 1985 and how it compares with the Australian population

As of 31 December 2021, around 385,000 Australians had served at least one day in the ADF between 1 January 1985 and 31 December 2021. Of these, approximately 368,000 were still alive, comprising 60,000 permanent, 38,700 reserve, and 269,000 ex-serving members.

Since 1985, the ex-serving population with at least one day of service has increased each year as permanent and reserve ADF members separate. At the end of 1985, there were 6,100 ex-serving members and by the end of 2021 this had grown to 284,000 (of whom 269,000 are still alive). As members leave the permanent and reserve service they are counted as members of the ex-serving study population.

The permanent, reserve, and ex-serving populations have different demographics to the Australian population overall. For example, the Australian population is 50% male, the ADF population is 84% male. The serving ADF population is on average younger than the Australian population.

Age and sex demographic factors are considered when examining differences in suicide levels between the ADF and Australian populations.

See the AIHW report [Serving and ex-serving Australian Defence Force members who have served since 1985: population characteristics 2019](#) for more detail on the ADF population characteristics.

What is not included in this report?

This report does not include data on several areas that may be of relevance to a study of suicide in the ADF member population and could further build the evidence base. For example, data are not included on living ADF members who have experiences with suicidal ideation, attempted suicide, or intentional self-harm.

More detailed information on ADF members who separated involuntarily for medical reasons, including detail on related medical conditions, could enable a better understanding of how separating for medical reasons may affect suicide deaths for this cohort. An additional complex challenge that would require further investigation is the feasibility of comparing rates of suicide between the involuntary medical separation cohort and other appropriate populations, such as people with similar medical conditions.

For some of the above areas of study there are currently no readily available complete data sources for analysis, for example relating to living ADF members who have experiences with suicidal ideation, attempted suicide, or intentional self-harm. Investigation of these areas by AIHW or other researchers would require data development or linkage before information could be reported.

Notes on measuring death by suicide

Information on suicide is presented in 3 ways in this report.

1. Overall counts of suicides are presented to give an indication of the total occurrences.
2. Suicide rates are reported to compare across groups within the permanent, reserve, and ex-serving cohorts to take into account the size of the underlying population.
3. Standardised Mortality Ratios (SMRs) are used to compare rates of suicide between groups with different age structures, such as when comparing the permanent, reserve, and ex-serving populations with the general Australian population.

Confidence Intervals (Cis) of 95% are used to assess uncertainty in suicide rates. CIs give some indication of how close the true rate lies to the calculated rate. Narrower CIs indicate more certainty in the result, and wider intervals means less certainty in the result.

More information on these concepts is in the [Technical notes](#).

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For information on support provided by DVA, see:

- [Mental health support services](#)
- [Free mental health care for veterans](#)

Analysis

Sex and service status group

Suicide rates by sex and service status group

Overview

This section presents suicide rates, age-adjusted suicide rates and numbers of deaths by suicide between 1997 and 2021 broken down by the service status groups (permanent, reserve, and ex-serving). While the absolute number of deaths by suicide has increased since the previous report (due to the expansion of the monitoring period) the suicide rates remain similar, indicating that the overall patterns in suicide risk remain the same.

How do suicide rates vary by service status and sex?

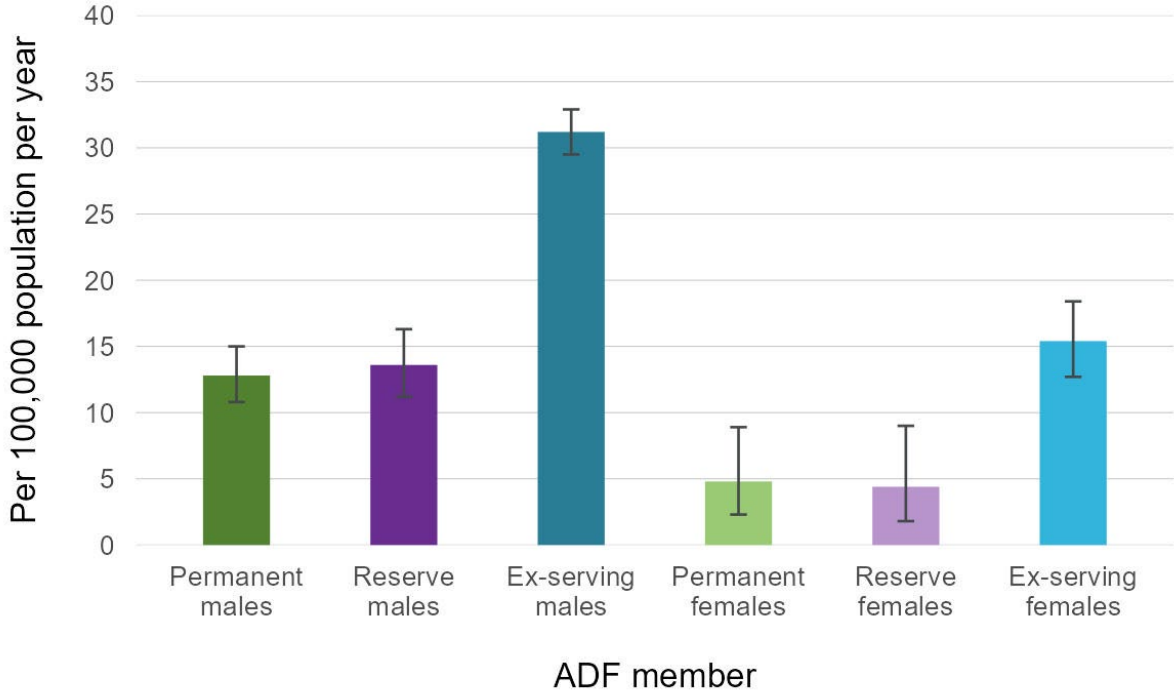
For those with service since 1985, the suicide rate was highest for ex-serving males. Suicide rates between 1997 and 2021 by service status and sex were as follows:

- 12.8 per 100,000 population per year for permanent males
- 13.6 per 100,000 population per year for reserve males
- 31.2 per 100,000 population per year for ex-serving males
- 4.8* per 100,000 population per year for permanent females
- 4.4* per 100,000 population per year for reserve females
- 15.4 per 100,000 population per year for ex-serving females.

Note: * Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

These rates are given in Figure 1 below. It is important to note that none of these groups are homogeneous and there are other underlying factors contributing to these results than just service status and sex. The remainder of this report is dedicated to determining differences between subgroups of serving and ex-serving ADF members.

Figure 1: Suicide rate by service status group and sex, 1997–2021



Note: Due to the difference in age profiles with the Australian population a direct comparison in suicide rates with the ADF population is not appropriate here. A comparison with the general Australian population using SMRs is given in the next section: *How do suicide rates for permanent, reserve, and ex-serving ADF members compare to the general population?*

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

How many ADF members died by suicide over the study period within each service status group?

Between 1997 and 2021 there were 1,677 certified deaths by suicide among members with ADF service since 1 January 1985. Of these, 1,395 occurred among ex-serving members, 162 among permanent members, and 120 among reserves. This is presented in Table 1.

Table 1: Total number of deaths by suicide, ADF members and Australian population, 1997–2021

	Males	Females	Persons
Serving	152	10	162
Reserve	113	7	120
Ex-serving	1,277	118	1,395
All ADF Members	1,542	135	1,677
Australian Population^(a)	50,445	15,230	65,675

Notes:

a. Number of deaths by suicide from all ADF members are included in the Australian population deaths by suicide count.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

AIHW suicide and self-harm monitoring report data 1997–2021.

The number of deaths by suicide for permanent and reserve members combined and ex-serving members by year, is presented in Table 2. For the number of deaths by suicide for males and females by year see Supplementary table S2.3.

When interpreting Table 2, it is important to remember that the ex-serving population increases each year as described in Box 2 (found [here](#)). As such, the increase in ex-serving suicides across the years 1997 to 2021 is not indicative of any increase in suicide rate. See Figure 2 for suicide rates of ex-serving males and females over time. (For population sizes by year see Supplementary tables S10.2 to S10.4, see [Data](#) for a link to the tables.)

Table 2: Number of deaths by suicide by year, ADF service status groups, 1997-2021

Year	Permanent and Reserve	Ex-serving	Total in all ADF service groups^(a)
1997	11	41	52
1998	13	55	68
1999	7	50	57
2000	16	48	64
2001	18	47	65
2002	14	37	51
2003	8	51	59
2004	12	44	56
2005	<i>n.p.</i>	<i>n.p.</i>	51
2006^(b)	<i>n.p.</i>	<i>n.p.</i>	42
2007^(c)	11	49	60
2008	8	50	58
2009	13	46	59
2010	13	63	76
2011	10	60	70
2012	7	55	62
2013	12	56	68
2014	12	66	78
2015	10	72	82
2016	15	74	89
2017	16	70	86
2018	6	71	77

Table 2 (continued): Number of deaths by suicide by year, ADF service status groups, 1997–2021

Year	Permanent and Reserve	Ex-serving	Total in all ADF service groups ^(a)
2019	14	76	90
2020	12	76	88
2021	13	56	69
Total	282	1,395	1,677

Notes:

n.p. Not available for publication but included in totals where applicable, unless otherwise indicated. In this case this is a result of low numbers being potentially identifying.

a. Consists of deaths by suicide in males and females for permanent, reserve, and ex-serving ADF members.

b. From 2006 onwards, the ABS implemented a revisions process for coroner-certified deaths (such as suicides). This improved data quality by enabling additional deaths by suicide to be identified beyond initial processing (ABS 2018). For detailed information, see [Technical notes](#).

c. New ABS coding guidelines were applied for deaths registered from 1 January 2007. The new guidelines improve data quality by enabling deaths to be coded as suicide by ABS mortality coders if evidence indicates the death was from intentional self-harm (ABS 2018). For detailed information, see the [Technical notes](#).

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

How do suicide rates for permanent, reserve and ex-serving ADF members compare to the general population?

After adjusting for age (using Standardised Mortality Ratios (SMRs) to control for differences in age distributions) permanent and reserve males had a lower rate of suicide than the general Australian population. However, ex-serving males and females had a higher rate of suicide than the general Australian male and female population respectively.

Compared with the Australian male or female population (whichever is appropriate), age-adjusted suicide rates between 1997 and 2021 were:

- 49% lower for permanent males
- 45% lower for reserve males
- 26% higher for ex-serving males
- 107% higher (or 2.07 times) for ex-serving females.

The differences between the Australian female population and both permanent and reserve females were not statistically significant, and so the results do not appear here

(the differences listed above are statistically significant). While the 107% figure for ex-serving females is larger than the 26% figure for ex-serving males, it should be noted that these are both a comparison with the general Australian population adjusting for age and sex. The overall suicide rate for ex-serving females is significantly lower than it is for ex-serving males (as shown in Figure 1).

It is important to note that these groups are not homogeneous. There are other underlying factors contributing to these numbers which are explored throughout this report.

Unlike suicide rates, these SMRs cannot be used to compare suicide rates between service groups or across time. This is because each SMR is a measure that provides a comparison that is specific to the two populations involved, see the [Technical notes](#) for further detail.

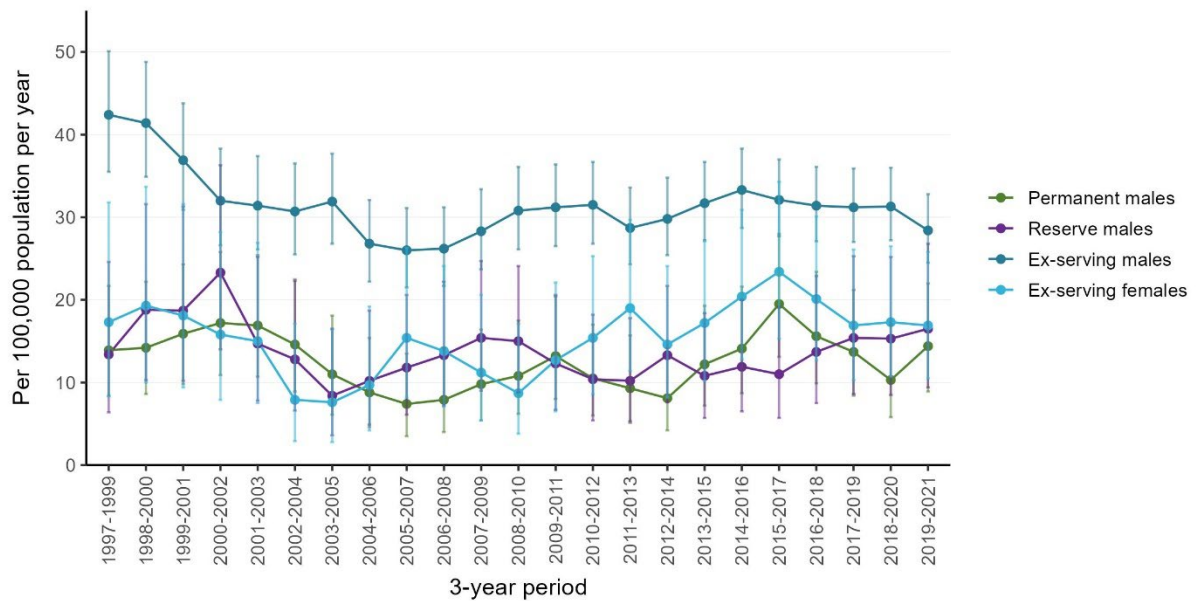
How have suicide rates changed over time for the different service status groups?

This section presents suicide rates over time in 3-year periods. Due to small numbers, there is some variability in these rates. Over the study period:

- The suicide rate for permanent males remained relatively constant from 1997–1999, with a rate of 13.9 deaths per 100,000 population per year in 1997–1999 and 14.4 in 2019–2021.
- The suicide rate for males in the reserves remained relatively constant from 2003–2005, with no statistically significant differences, ranging between 8.4 deaths per 100,000 population per year in 2003–2005 and 16.5 in 2019–2021.
- The suicide rate for ex-serving males has remained relatively constant since the mid-2000s, with a rate of 26.0 per 100,000 population in 2005–2007 and 28.4 in 2019–2021. There was an overall drop in the rate of suicide from the late 1990s to the mid-2000s, which is consistent with the pattern observed in Australian males over the same period.
- The suicide rate for ex-serving females has fluctuated between 7.6 deaths per 100,000 population per year in 2003–2005 and 23.4 in 2015–2017. There is no easily identifiable trend due to the wide confidence intervals around these rates from the low total numbers.

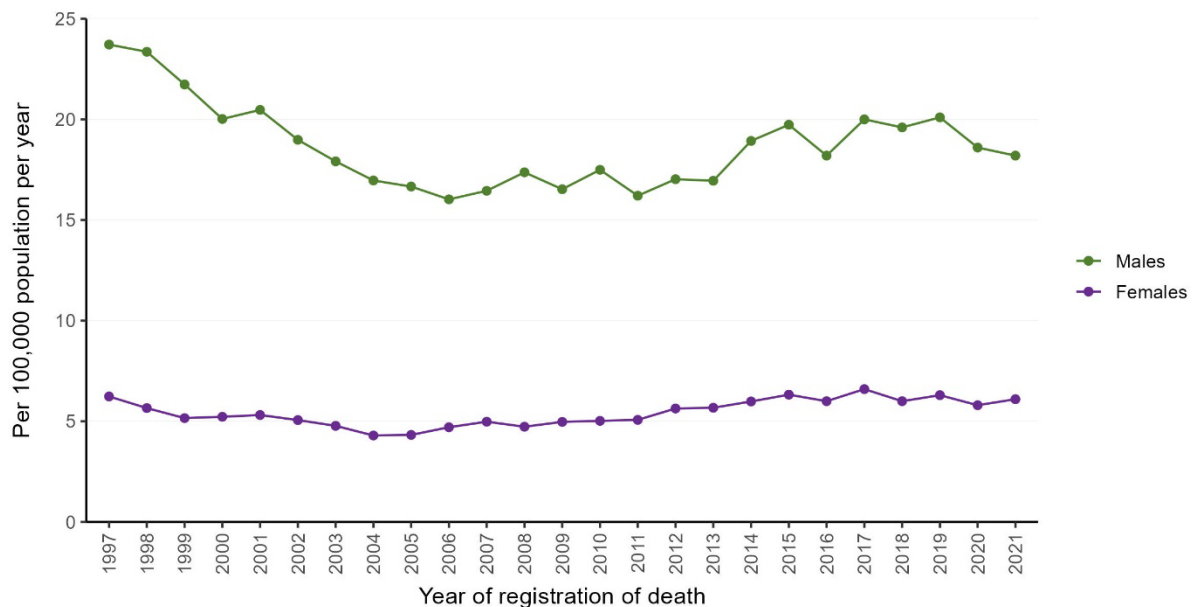
The interactive graph below (Figure 2) presents the suicide rates for males in each of the 3 ADF service status groups and ex-serving females, for all 3-year periods from 1997–1999 to 2019–2021. The rates of suicide for males and females for the Australian general population are presented in Figures 3 for comparison.

Figure 2: Rate of suicide by service status and sex, 1997–1999 to 2019–2021



Note: The confidence intervals in this Figure can be used to determine whether there is a statistically significant difference between the suicide rates calculated for the ADF between different 3-year periods. However, they cannot be used to determine whether there is a statistically significant difference between rates calculated for the ADF population for overlapping 3-year time periods (for example 2002–2004 and 2003–2005).

Figure 3: Australian males and females, age-standardised rate, 1997–2021



Data underlying these Figures are available in Supplementary tables S3.2, S5.2 and S6.1. See [Data](#) for a link to the tables.

Please note, data for more recent years are subject to change: see the [Technical notes](#) for further detail.

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Age

Suicide rates by age

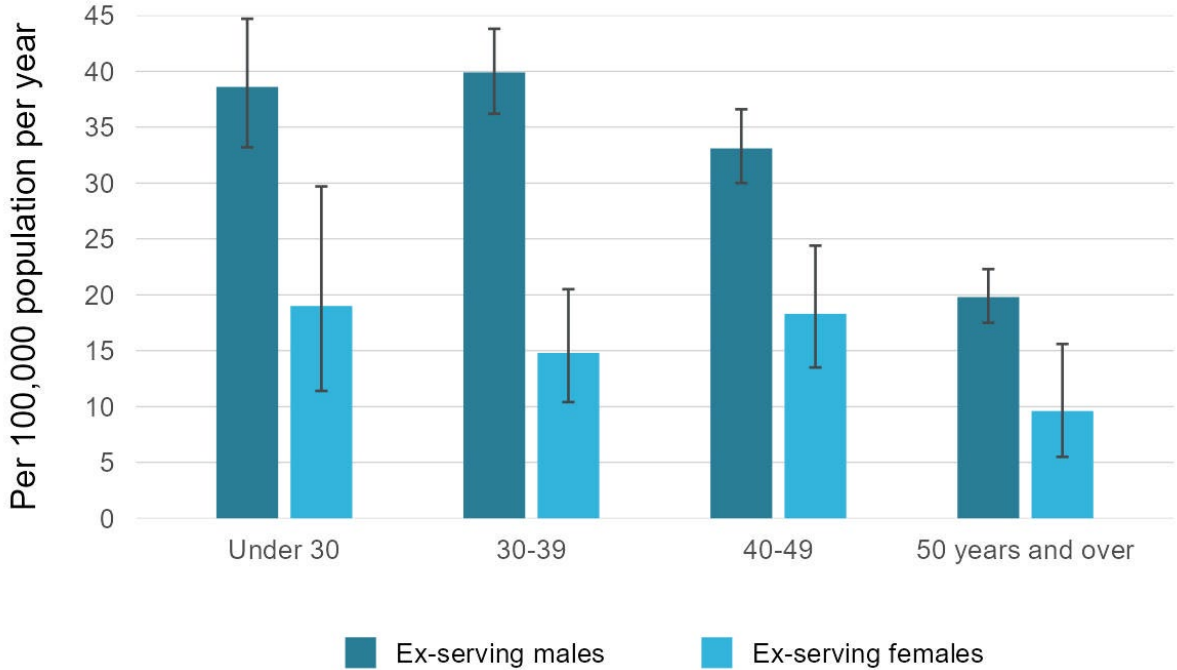
Ex-serving males and females

Between 1997 and 2021, the suicide rate for ex-serving males aged 50 years and over was significantly lower than ex-serving males under 50 years of age (19.8 and 36.8 per 100,000 population per year). There was no statistically significant difference between any of the male age cohorts under 50 years of age.

There was no statistically significant difference between the ex-serving females suicide rates by age.

This is shown in Figure 4 below.

Figure 4: Suicide rate by age group, ex-serving males and females, 1997-2021



Source: AIHW analysis of linked Defence historical personnel data-PMKeyS-NDI data 1985-2021.

Suicide rates in ex-serving members by age compared with the Australian population

Here comparisons have been made for the suicide rates for the age-specific ex-serving cohorts with the general Australian population. The suicide rates for ex-serving males and females aged 50 years and over were similar to Australian males and females in the same age group. However, the age-specific suicide rates for ex-serving males and females were higher than the Australian population for all other age groups. For those under 30, the suicide rate for ex-serving females was around 3 times that of Australian females, and 1.7 times for ex-serving males compared with Australian males.

The full set of values is given in Tables 3 and 4 below.

Table 3: Suicide rate by age group, ex-serving males and Australian males, 1997–2021

Age group (years)	Male ex-serving suicide rate (per 100,000 population per year)	Male Australian suicide rate ^(a) (per 100,000 population per year)	Significant difference to Australian population
Under 30	38.6	22.5	Yes, Higher
30–39	39.9	26.9	Yes, Higher
40–49	33.1	26.7	Yes, Higher
50 and over	19.8	21.1	No

Note:

a. The age range for Australian males were matched to the ex-serving ADF males age range (minimum and maximum ages were 17 and 96 respectively).

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021; NMD 1985–2021.

Table 4: Suicide rate by age group, ex-serving females and Australian females, 1997–2021

Age group (years)	Female ex-serving suicide rate (per 100,000 population per year)	Female Australian suicide rate ^(a) (per 100,000 population per year)	Significant difference to Australian population
Under 30	19.0*	6.4	Yes, Higher
30–39	14.8	7.4	Yes, Higher
40–49	18.3*	7.9	Yes, Higher
50 and over	9.6	6.4	No

Note:

a. The age range for Australian females were matched to the ex-serving ADF females age range (minimum and maximum ages were 17 and 91 respectively).

* Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021; NMD 1985–2021.

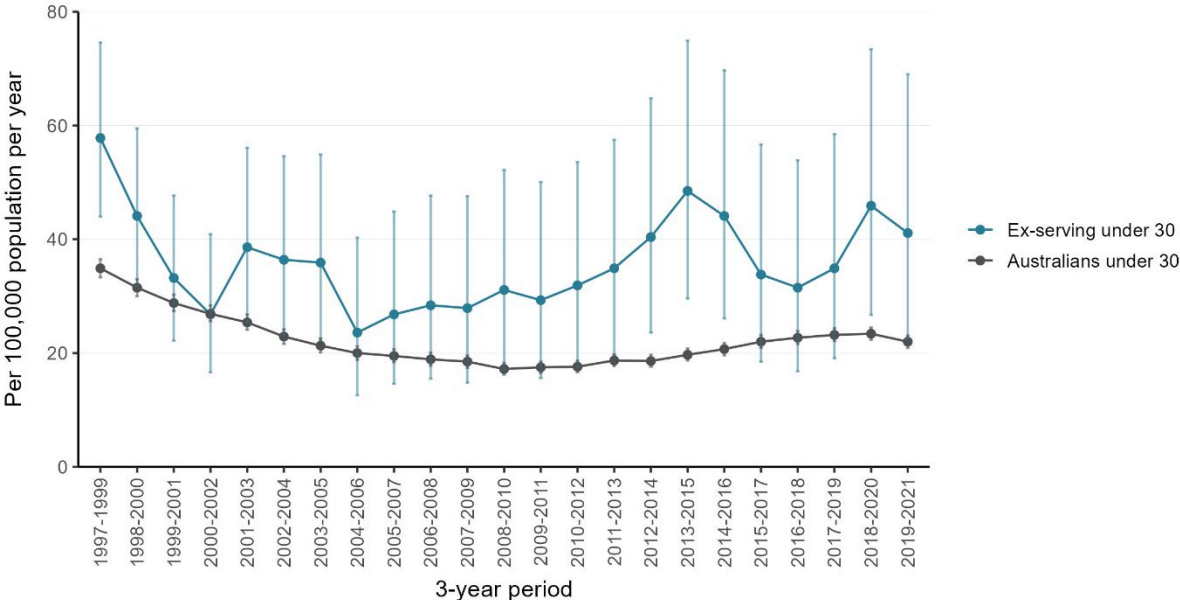
Suicide rates by age over time

There is some fluctuation over time in the suicide rates by age group, though most differences are not statistically significant.

The suicide rate for ex-serving males by age group is compared with the rate for Australian males in the same age range in the interactive graph below (Figure 5). Select an age group from the menu to display the comparison. Due to the small number of suicide deaths among ex-serving females, suicide rates by age over time are not reported.

Please note: The graph below is an image of an interactive graph available in the online version of this report. See Appendix for other data selections available for rates of suicide.

Figure 5: Rate of suicide, ex-serving and Australian males by age, 1997–1999 to 2019–2021



Notes:

The confidence intervals in this Figure can be used to determine whether there is a statistically significant difference between the suicide rates calculated for the ADF between different 3-year periods. However, they cannot be used to determine whether there is a statistically significant difference between rates calculated for the ADF population for overlapping 3-year time periods (for example 2002–2004 and 2003–2005).

Minimum and maximum ages of Australian males were matched to the minimum and maximum ages of ADF ex-serving males for each year within 3-year periods.

Data underlying this graph are available in Supplementary table S6.2 and S6.3. See [Data](#) for a link to the tables.

Please note, data for recent years are subject to change; see [Technical notes](#) for further detail.

Suicide rates by age and service status

Permanent and reserve male suicide rates were similar regardless of their age at death. The suicide rate was higher among ex-serving males compared to permanent or reserve males for the age groups of under 30, 30–39, and 40–49 years. For those 50 years and over, ex-serving males had a higher suicide rate compared to permanent and reserve males, however, this difference was not statistically significant for permanent males (see Table 5 and Figure 6 below). While the difference was not found to be not statistically significant, there may still be a real difference that the statistical test did not detect due to the small size of the veteran cohort.

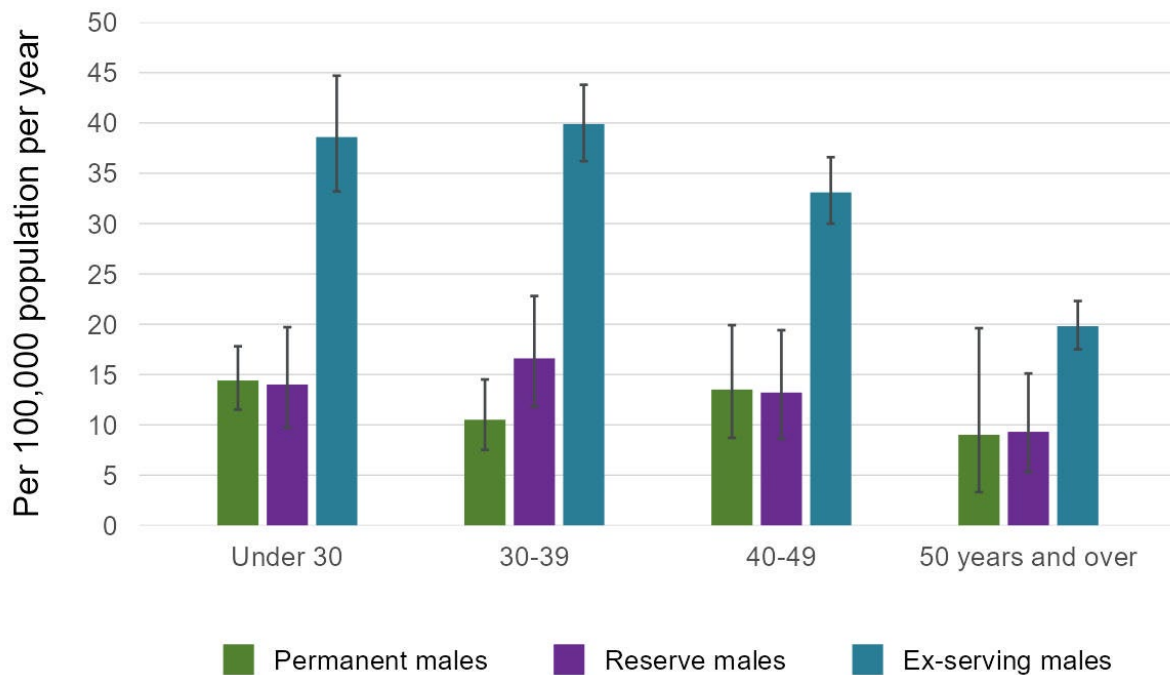
Table 5: Male suicide rate by age group and service status, 1997–2021

Age group (years)	Permanent males: Suicide rate per 100,000 population per year	Reserve males: Suicide rate per 100,000 population per year	Ex-serving males: Suicide rate per 100,000 population per year
Under 30	14.4	14.0	38.6
30–39	10.5	16.6	39.9
40–49	13.5	13.2	33.1
50 and over	9.0*	9.3*	19.8

Note: * Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021

Figure 6: Male suicide rate by age group and service status, 1997–2021



Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Due to the small number of suicide deaths among permanent and reserve females, suicide rates by age group and service status are not reported.

Data underlying this graph are available in Supplementary table S4.1, S4.2 and S5.3. See [Data](#) for a link to the tables.

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Service

Suicide rates by service

The ADF comprises 3 services: the Royal Australian Navy (Navy), the Australian Army (Army) and the Royal Australian Air Force (Air Force). An individual may move between services over their career. Unless stated otherwise, the service recorded for ex-serving members is their service at their time of separation.

The majority of ex-serving members were in Army (68% for males and 62% for females). By contrast 16% of males and 18% of females were in Navy, and 16% of males and 20% of females were in Air Force.

The rate of suicide for ex-serving males from Air Force was lower than for ex-serving males from Army or Navy, as shown in Table 6 and Figure 7 below. However, note that the Cox proportional hazards modelling analysis from the 2022 report, which evaluated the effects of multiple service characteristics concurrently, showed that this effect disappeared when other service characteristics were accounted for (AIHW 2022). There is no statistical difference between the suicide rates for difference services among ex-serving females.

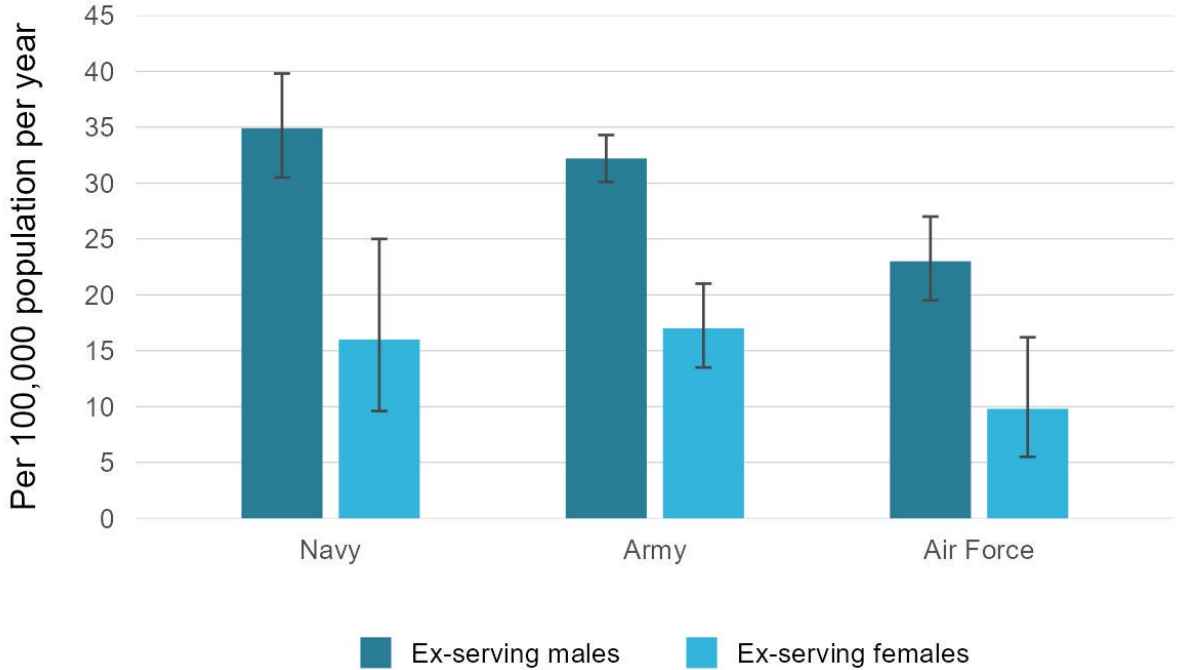
Table 6: Suicide rates by service, ex-serving males and females, 1997–2021

Service	Ex-serving males: Suicide rate per 100,000 population per year	Ex-serving females: Suicide rate per 100,000 population per year
Navy	34.9	16.0*
Army	32.2	17.0
Air Force	23.0	9.8*

Note: * Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Figure 7: Suicide rate by service, ex-serving males and females, 1997–2021



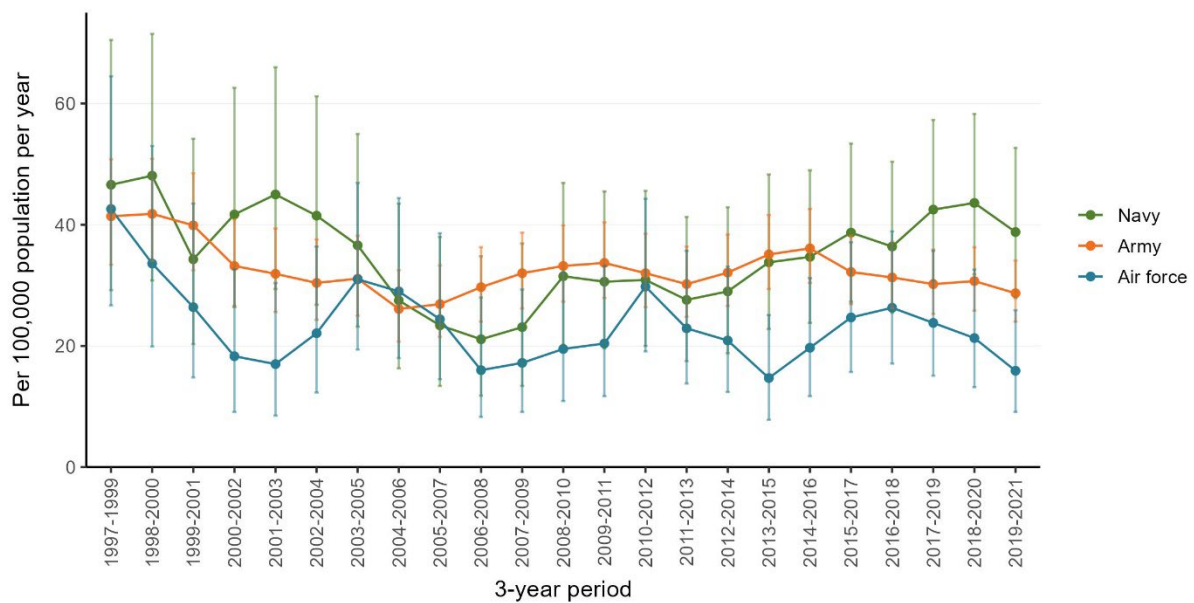
Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Suicide rates by service over time

The following graph (Figure 8) shows how suicide rates for ex-serving males by service varies over time in 3-year periods from 1997–1999 to 2019–2021. While there is some fluctuation, the wide confidence intervals mean that no statistically significant differences over time were detected.

Due to small number of suicide deaths among ex-serving females, suicide rates over time are not reported.

Figure 8: Rate of suicide for ex-serving males by service, 1997–1999 to 2019–2021



Note: The confidence intervals in this Figure can be used to determine whether there is a statistically significant difference between the suicide rates calculated for the ADF between different 3-year periods. However, they cannot be used to determine whether there is a statistically significant difference between rates calculated for the ADF population for overlapping 3-year time periods (for example 2002–2004 and 2003–2005).

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Data underlying this graph are available in Supplementary table S6.4. See [Data](#) for a link to the tables.

Please note, data for more recent years are subject to change; see the [Technical notes](#) for further detail.

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Reason for separation

The reasons that members separate from the ADF can be categorised into 4 broad groups (see [Technical notes](#) for the categorisation of these groups):

- Voluntary separation
- Involuntary separation for reasons other than medical (referred to as other involuntary separation)
- Involuntary medical separation
- Contractual or administrative change.

The separation date used in this report is when a member leaves the ADF entirely, that is when they are no longer a permanent or reserve member. Separation reason is therefore the reason recorded for leaving their last engagement with the ADF.

Due to a change in the way the reason for separating from the ADF was recorded in 2002, analysis is only reported for ADF members who separated from 1 January 2003 onwards and does not include those who separated prior to 2003. ADF members who separated from 1 January 2003 comprise 43% of the ex-serving cohort who had served at least 1 day since 1 January 1985. Among this cohort:

- the most common type of reason for separation was voluntary separation, with similar proportions for males and females (45% and 44% respectively)
- this was followed by other involuntary separation (males 29% and females 23%)
- next was involuntary medical separation (males 15% and females 19%)
- for contractual or administrative changes these accounted for 11% of male separations, and 14% of female separations.

Between 2003 and 2021, the suicide rate for ex-serving males by reason for separation was lowest for those who separated either voluntarily or for contractual/administrative reasons (21.5 and 17.5 per 100,000 population per year respectively) and highest for those whose reason for separation was involuntary medical (67.1 per 100,000 population per year).

This is demonstrated in Table 7 and Figure 9 below.

Table 7: Suicide rates by reason for separation, ex-serving males and females, 2003^(a)-2021

Reason for separation	Ex-serving males: Suicide rate per 100,000 population per year	Ex-serving females: Suicide rate per 100,000 population per year
Voluntary	21.5	17.7*
Other involuntary	35.7	17.5*
Involuntary medical	67.1	37.7*
Contractual or administrative	17.5*	0

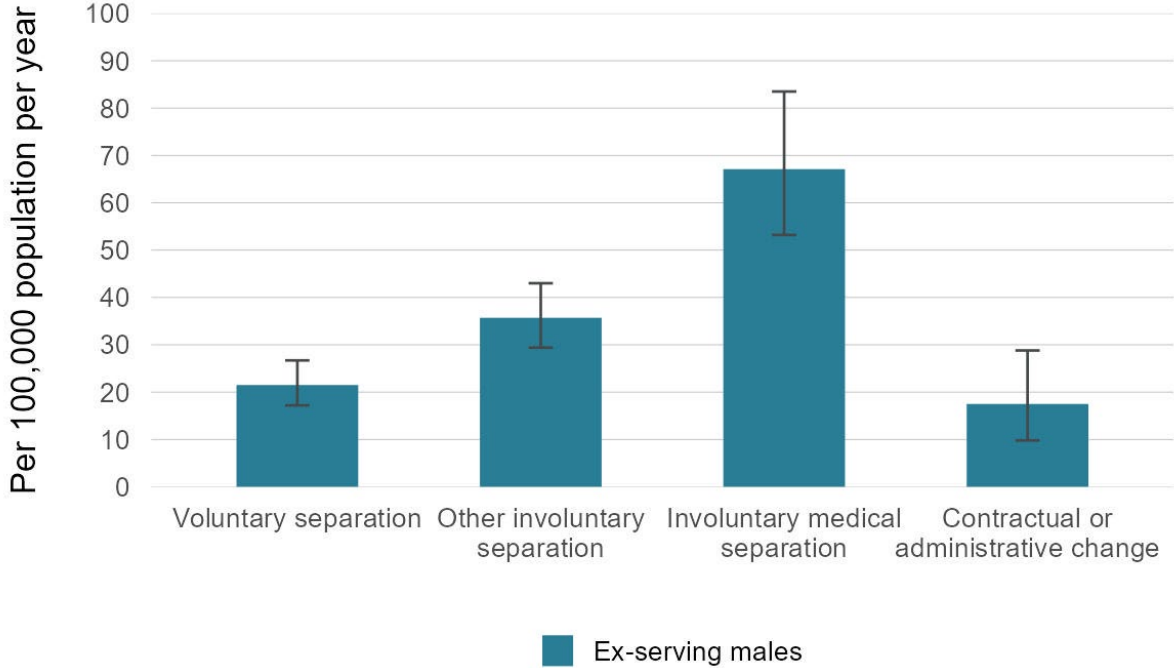
Notes:

a. Due to a change in the way the reasons for separating the ADF was recorded during 2002, analysis is presented only for ADF members who left from 1 January 2003 onwards. These members comprise 43% of the total ex-serving members with at least 1 day of service since 1 January 1985.

* Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of linked Defence historical personnel data-PMKeyS-NDI data 1985-2021.

Figure 9: Suicide rates by reason for separation, ex-serving males, 2003-2021



Source: AIHW analysis of linked Defence historical personnel data-PMKeyS-NDI data 1985-2021.

The age-adjusted analysis for the male voluntary and contractual/administrative separation cohorts indicates that there is no statistical difference in suicide rate between these cohorts and the Australian male population. Similar analyses indicate that the involuntary separation cohorts have a higher rate of suicide than the Australian population.

Compared with the Australian male population, suicide rates between 2003 and 2021 for ex-serving males were:

- similar to those who separated for voluntary reasons with no statistically significant difference found
- 54% higher for those who separated for other involuntary reasons
- 178% higher (or 2.78 times) for those who separated for involuntary medical reasons
- similar to those who separated for contractual or administrative reasons, with no statistically significant difference found.

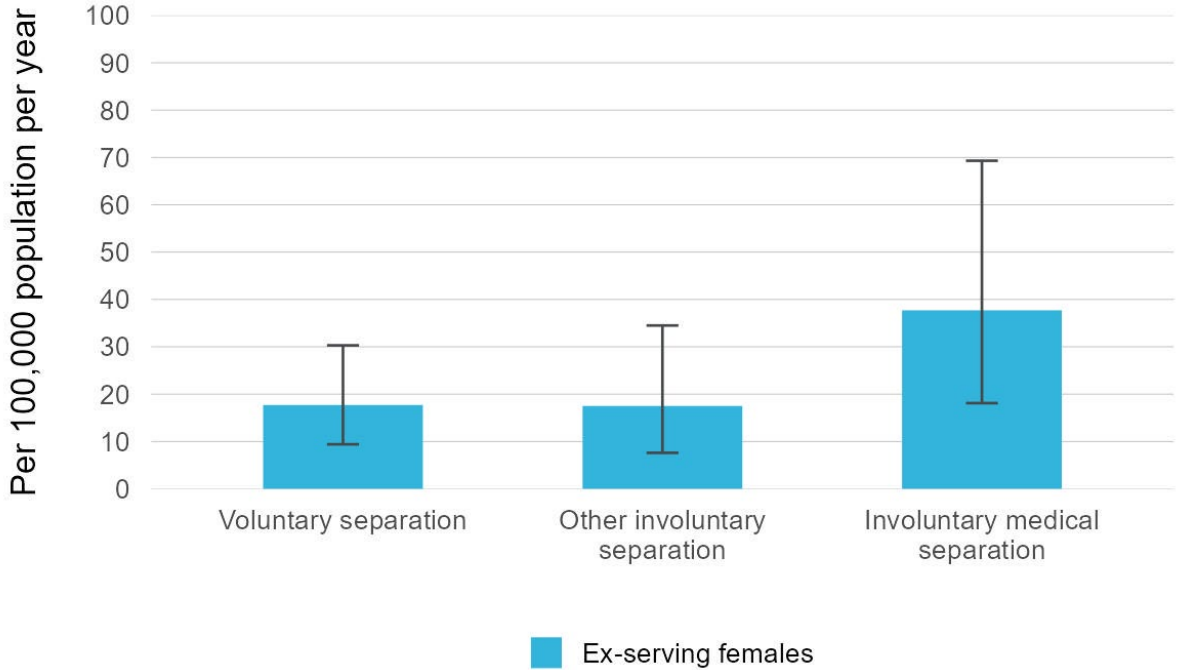
Of the sub-populations studied in this report, the male involuntary medical separation cohort has the highest suicide rate. Last year's modelling analysis chapter showed that the involuntary medical separation group was the most at-risk sub population for death by suicide among ex-serving population, even when accounting for other variables such as age, sex and service-related characteristics (AIHW 2022).

A challenge that would require further investigation is assessing the feasibility of comparing rates of suicide between the involuntary medical separation cohort and other appropriate populations, such as people with similar medical conditions.

Between 2003 and 2021, the suicide rates for ex-serving females by reason for separation were statistically similar for voluntary separation, involuntary medical separation, and other involuntary separation, noting that the wide confidence intervals here make significant differences difficult to identify. Where comparisons are found to be not statistically significant, there may still be a real difference of practical importance that the statistical test did not detect due to the small size of the female veteran cohort. See Supplementary table S4.2.

Since there were no suicide deaths among ex-serving females who separated for contractual or administrative reasons this column does not appear in Figure 10 below.

Figure 10: Suicide rates by reason for separation, ex-serving females, 2003–2021



Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Due to the shortened period of usable data and overall low numbers the time series graphs for reason for separation are not presented. Age and sex standardised analyses for ex-serving females broken down by reason for separation show that each reason for separation cohort (apart from contractual or administrative) has a higher suicide rate compared to the respective general Australian population, including the voluntary separation cohort.

Data underlying these graphs are available in Supplementary table S4.1 and S4.2. See [Data](#) for a link to the tables.

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Length of service

Suicide rates by length of service

Length of service describes the time between joining the ADF and separation². For suicide rates analysis in this report, length of service is presented in 5 groups (ranging from less than 1 year to more than 20 years).

The proportions of ex-serving males and females by varying length of service were as follows:

- 13% of males and 17% of females had served less than 1 year.
- 26% of males and 32% of females had between 1–<5 years of service.
- 18% of males and 21% of females had between 5–<10 years of service.
- 20% of males and 20% of females had between 10–<20 years of service.
- 23% of males and 10% of females had served 20 or more years.

The average length of service was higher for males than females (11 years and 8.0 years respectively).

² Recall that the separation point used in this study reflects full separation from the ADF – that is, when a member is no longer permanent or reserve. For example, a member who transfers from full time service to the reserves is not yet counted as having separated.

Suicide rates for ex-serving males decreased as length of service increased. The suicide rate was lowest for males who served more than 20 years (16.2 per 100,000 population per year) and highest for those who had served less than one year (47.5 per 100,000 population per year). These are significantly different from the 1–<5, 5–<10 and 10–<20 year categories, which are themselves statistically similar, as shown in Figure 11 below.

For ex-serving females, rates of suicide were statistically similar for all lengths of service. This is shown in Table 8 and Figure 11 below.

Table 8: Suicide rate by length of service, ex-serving members, 1997–2021

Length of service (years)^(a)	Ex-serving males: Suicide rate per 100,000 population per year	Ex-serving females: Suicide rate per 100,000 population per year
<1	47.5	17.7
1–<5	33.4	17.0
5–<10	33.1	15.8
10–<20	28.2	9.1*
20 or more	16.2	12.8*

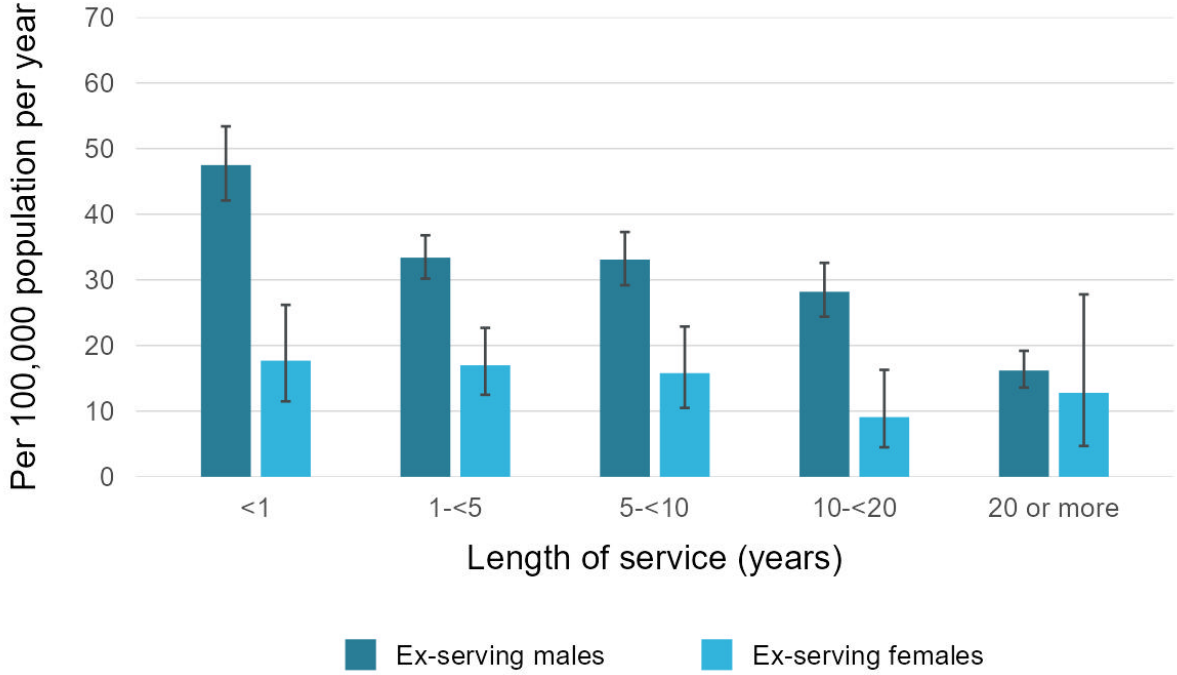
Notes:

a. The time between the date of hire and date of separation from the ADF.

* Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Figure 11: Suicide rate by length of service, ex-serving males and females, 1997-2021



Source: AIHW analysis of linked Defence historical personnel data-PMKeyS-NDI data 1985-2021.

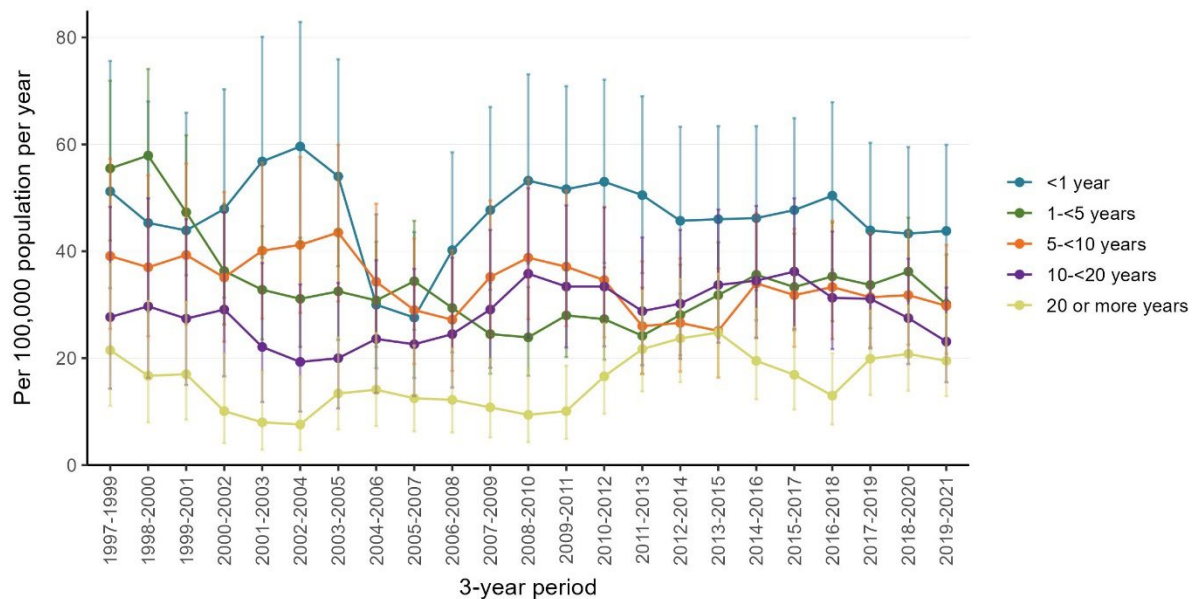
Suicide rates by length of service over time

The suicide rates for ex-serving males by the 5 length of service groups were relatively stable over time. There appears to be a large decrease over the years 2004 to 2007 among the <1 year cohort, though this fluctuation is not statistically significant relative to other datapoints in this series.

Due to the small number of suicide deaths among ex-serving females, suicide rates by length of service over time are not reported.

The interactive graph below (Figure 12) presents the suicide rates for ex-serving males in each of the length of service groups, for all 3-year periods from 1997-1999 to 2019-2021.

Figure 12: Rate of suicide for ex-serving males by length of service, 1997–1999 to 2019–2021



Note: The confidence intervals in this Figure can be used to determine whether there is a statistically significant difference between the suicide rates calculated for the ADF between different 3-year periods. However, they cannot be used to determine whether there is a statistically significant difference between rates calculated for the ADF population for overlapping 3-year time periods (for example 2002–2004 and 2003–2005).

Data underlying this graph are available in Supplementary table S6.6. See [Data](#) for a link to the tables.

Please note, data for more recent years are subject to change; see the [Technical notes](#) for further detail.

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Time since separation

Suicide rates by time since separation

For ex-serving members who died during the monitoring period, time since separation is the time between full separation from the ADF and date of death. For members who were alive at the end of the monitoring period, the time since separation is the time between their separation from the ADF and 31 December 2021. In this report, time since separation is presented in 5 groups (ranging from less than one year to more than 20 years).

The proportions of the ex-serving cohort, alive and deceased, that fall into each time since separation category are:

- Around half (52% of males and 53% of females) separated from the ADF 20 or more years ago, or 20 or more years before their death.
- Just under one quarter (22% of males and 22% of females) separated from the ADF between 10 and 20 years ago, or between 10 and 20 years before their death.
- For males 14%, and for females 12% separated from the ADF between 5 and 10 years ago, or between 5 and 10 years before their death.
- For males 9.1%, and for females 10% separated from the ADF between 1 and 5 years ago, or between 1 and 5 years ago before their death.
- Around 2.5% of males and 2.7% of females separated less than 1 year ago, or less than 1 year before their death.

Table 9 below gives the suicide rates corresponding to these categories.

Table 9: Suicide rate by time since separation, ex-serving males and females, 1997–2021

Time since separation (years)^(a)	Ex-serving males: Suicide rate per 100,000 population per year	Ex-serving females: Suicide rate per 100,000 population per year
<1	30.1	25.7*
1–<5	32.5	12.4*
5–<10	31.6	17.4
10–<20	31.9	15.5
20 or more^(b)	29.3	14.0

Notes:

a. The period between separation date and extract date (31 December 2021) for those alive at the extract date. The period between separation date and death for ex-serving members who have died.

b. Due to the study population, suicide rates for time since separation 20 or more are from 2005–2021.

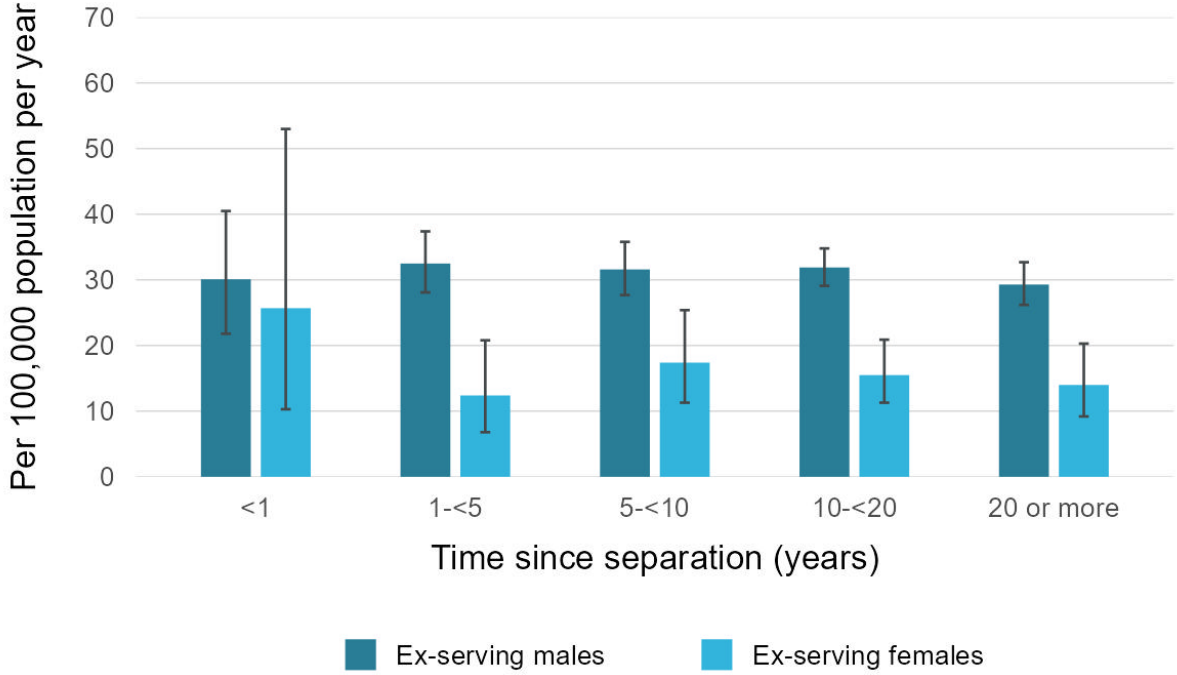
* Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

The average time since separation for all ex-serving members was 20 years and the maximum length of time since separation observed in this study was 37 years.

The rates of suicide were similar regardless of time since separation for both ex-serving males and females, as demonstrated below in Figure 13.

Figure 13: Suicide rate by time since separation, ex-serving males and females, 1997–2021



Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Suicide rates for time since separation over time

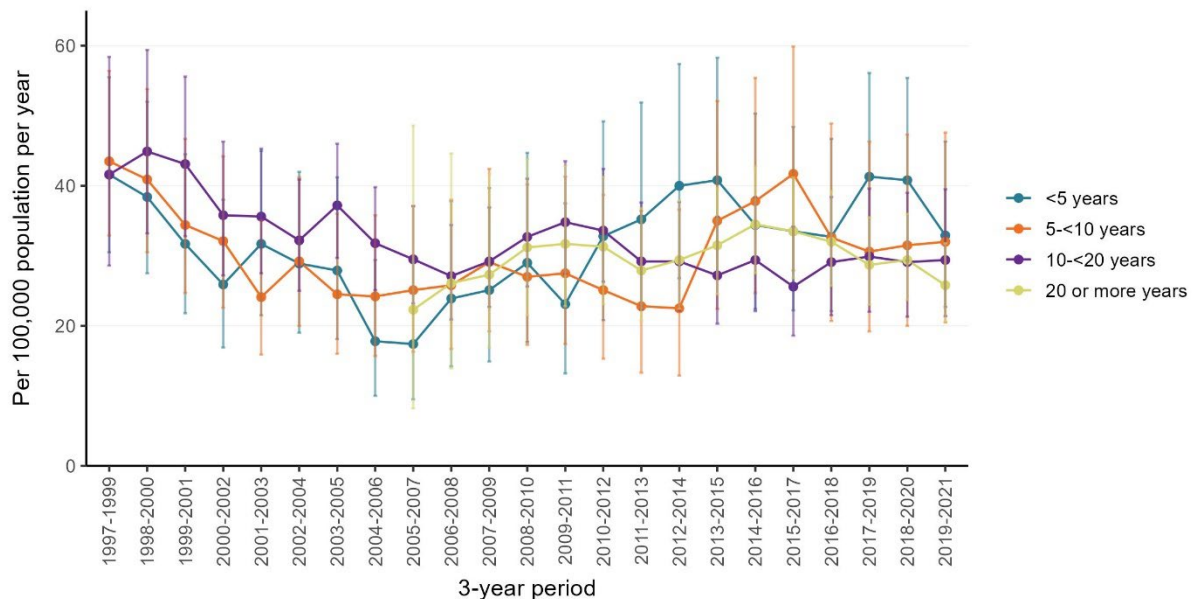
Suicide rates over time for ex-serving males by time since separation are presented in the interactive graph below. Note that due to small numbers of suicide deaths with less than one year since separation data are aggregated and presented for less than 5 years since separation.

Due to the small number of suicide deaths among ex-serving females, suicide rates over time are not reported.

Although there has been some small variation in the suicide rates for individual groups over time, these variations were not significant.

The interactive graph below (Figure 14) presents the suicide rates for ex-serving males in each of the time since separation groups for all 3-year periods from 1997–1999 to 2019–2021.

Figure 14: Rate of suicide for ex-serving males by time since separation, 1997–1999 to 2019–2021



Note: The confidence intervals in this Figure can be used to determine whether there is a statistically significant difference between the suicide rates calculated for the ADF between different 3-year periods. However, they cannot be used to determine whether there is a statistically significant difference between rates calculated for the ADF population for overlapping 3-year time periods (for example 2002–2004 and 2003–2005).

Data underlying this graph are available in Supplementary table S6.7. See [Data](#) for a link to the tables.

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Rank

Suicide rates by rank

Rank describes organisational and workforce structures that determine a member's position, conditions, opportunities, and entitlements (such as pay and conditions). This analysis is based on rank at time of separation. Rank is presented in 2 broad groups: officer ranks and other ranks³.

For males and females, 14% of the ex-serving cohort were officers while the remaining 86% of ex-serving members were in the other ranks group at time of separation. The suicide rates for these groups are given in Table 10 below.

Table 10: Suicide rate by rank, ex-serving males and females, 1997–2021

Rank at time of separation	Ex-serving males: Suicide rate per 100,000 population per year	Ex-serving females: Suicide rate per 100,000 population per year
Officer ranks ^(a)	16.1	10.4*
Other ranks ^(b)	33.2	16.0

Notes:

a. For the purposes of this analysis this is a Defence member who holds a rank of Midshipman or Officer Cadet, or higher.

b. A Defence member who holds an equivalent rank to E00 (Recruit Seaman, Private, or Aircraftman) to E10 (Warrant Officer of the Navy, Regimental Sergeant Major of the Army, or Warrant Officer of the Air Force).

* Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

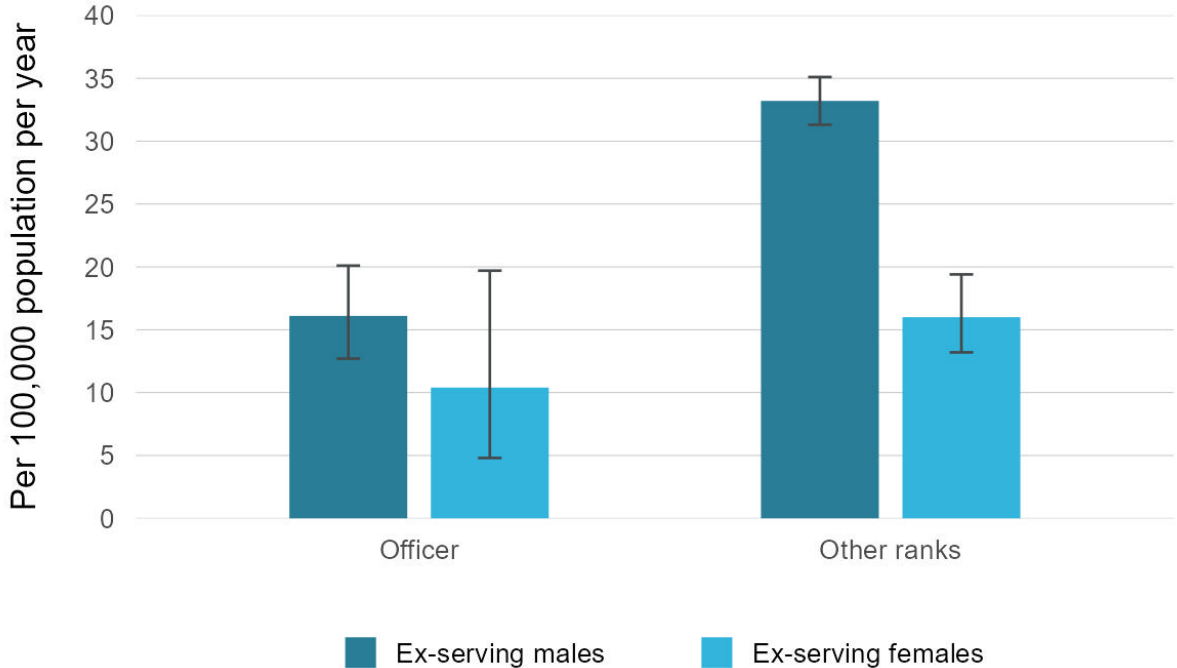
Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Between 1997 and 2021, the suicide rate for ex-serving males who were officers was approximately half that of those who were other ranks (16.1 compared with 33.2 per 100,000 population per year).

For ex-serving females, rates of suicide were similar for officers and other ranks (10.4 and 16.0 per 100,000 population per year). This is shown in Figure 15 below.

³ Last year's report split other ranks into junior and senior cohorts. Since this breakdown is very strongly correlated with Length of Service these groups have been re-aggregated for this report.

Figure 15: Suicide rate by rank, ex-serving males and females, 1997–2021



Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Suicide rates by rank over time

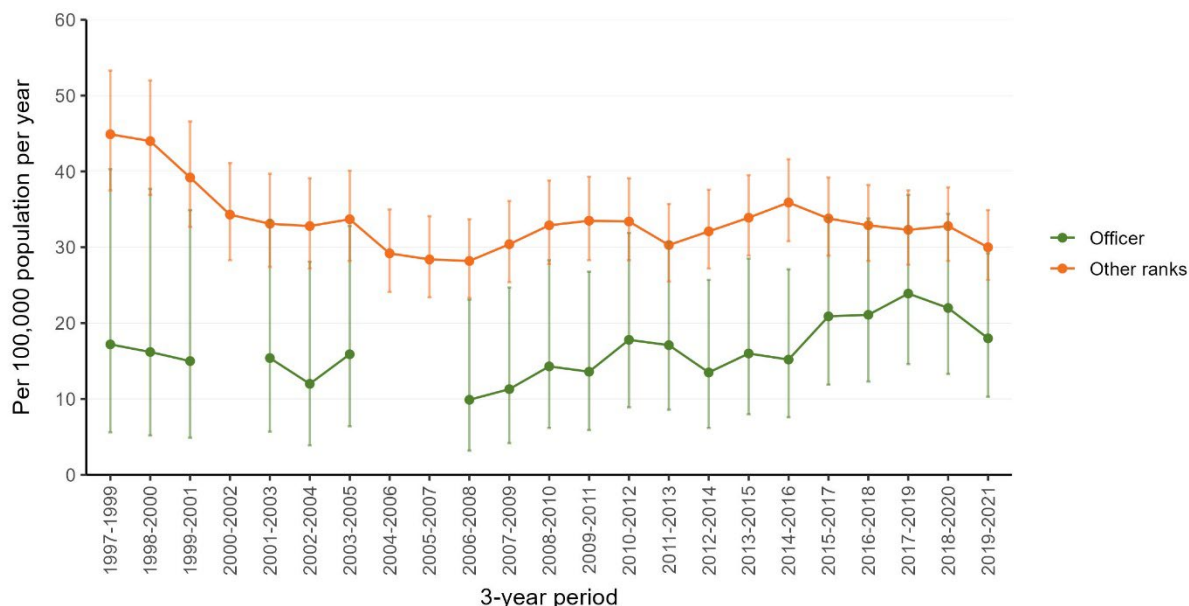
Rates of suicide for ex-serving males who separated as ranks other than officer shows a drop between the late 1990s and the mid 2000s, which is consistent with patterns observed in the general Australian male population over this period (see Figure 3).

Analysis of suicide rates among officers is based on a small number of suicide deaths. Results have not been reported where there were less than 5 suicides in the 3-year periods, 2000 to 2002, 2004 to 2006 and 2005 to 2007.

Due to small numbers of suicide deaths among ex-serving females, suicide rates by rank over time are not reported.

The interactive graph below (Figure 16) presents the suicide rates for ex-serving males in each of the rank groups, for all 3-year periods from 1997–1999 to 2019–2021.

Figure 16: Rate of suicide for ex-serving males by rank, 1997–1999 to 2019–2021



Note: The confidence intervals in this Figure can be used to determine whether there is a statistically significant difference between the suicide rates calculated for the ADF between different 3-year periods. However, they cannot be used to determine whether there is a statistically significant difference between rates calculated for the ADF population for overlapping 3-year time periods (for example 2002–2004 and 2003–2005).

Data underlying this graph are available in Supplementary table S6.5. See [Data](#) for a link to the tables.

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For information on support provided by DVA, see:

- [Mental health support services](#)
- [Free mental health care for veterans](#)

Department of Veterans' Affairs clients

Background

The Department of Veterans' Affairs (DVA) is responsible for developing and providing a range of services, programs of care, compensation, income support, and commemoration for the veteran and defence force communities and their families (DVA 2021a). Permanent, reserve and ex-serving ADF members may be eligible to receive a range of entitlements depending on personal circumstances, such as compensation payments, means-tested pensions, and subsidised health treatments.

DVA works with veterans and their families to improve services and support for those who have served in the ADF, and continues to play a part in improving mental health and wellbeing outcomes, and reducing the risk of suicide (DVA 2020). Historically, permanent, reserve and ex-serving ADF members who are DVA clients may have complex physical and mental health care needs leading them to require greater health service use compared with non-DVA clients. Changes and introduction of new DVA policy measures have worked to improve the services and supports available to veterans over time. For example, since mid-2018 permanent ADF members transitioning to civilian life are now issued a Veteran Card (White Card), which entitles them to treatment for all mental health conditions under the Non-Liability Health Care program.

This in-focus chapter presents a profile of the service-related characteristics of Australian Defence Force (ADF) members who have served between 1985 and 2021 and were DVA clients. Rates, numbers and proportions of deaths by suicide between 2002 and 2021 by DVA client status are also reported.

The analysis presented in this section uses data from the current DVA client and National Treatment Account system, and Department of Defence personnel systems. The analysis covers interactions with DVA by ADF members who have served at least one day since 1 January 1985, and who were alive or died between 2002 and 2021⁴.

Who are DVA clients?

In the general sense, DVA clients include permanent, reserve, or ex-serving ADF members, or their partners/dependants, who receive support from DVA. A DVA client can be a DVA card holder, a benefit or income recipient and/or a user of health or support services funded by DVA. DVA cardholders can access a range of benefits, including health care, pharmaceutical benefits and other concessions. There are several types of cards issued to DVA clients - the Veterans White Card is the most common. The [Technical notes](#) sections contain further discussion of DVA client status.

⁴ As this analysis relies on Defence personnel data, it covers interactions with DVA by ADF members who have served at least one day since 1 January 1985, it does not include ex-serving ADF members who separated from the ADF prior to 1985. For example, the analysis does not include DVA clients who served in the Vietnam War, Korean War and World War II, and who separated from the ADF prior to 1985.

This analysis includes DVA clients who are permanent, reserve or ex-serving ADF members, with a focus on ex-serving ADF members. It does not include family members or dependents.

Permanent, reserve and ex-serving ADF members vary in how actively they engage with DVA for support, how much support they need, and the benefits to which they are eligible. This report considers 2 types of DVA client status, described in Box 3.

Box 3: Definitions of DVA client groups considered in this report

DVA client: Permanent, reserve, or ex-serving ADF members who have had any kind of interaction with DVA as an eligible client. This includes those who have:

- been issued a DVA card, made at least one claim accepted by DVA
- received any kind of payment from DVA
- accessed a DVA funded health or support service.

DVA recent interaction client: Permanent, reserve, or ex-serving ADF members who have received a DVA funded health or support service, or have received regular income or payments from DVA that would be considered a primary source of income, in the 2 years prior to a reference date or death. It is important to note that everyone occupying this category is also a broadly defined DVA client.

The broad definition of DVA client is inclusive of ADF members regardless of the date of contact with DVA, including where the only recorded accepted claim, card issue, benefit, payment or service occurred after death. For example, this definition includes cases where compensation payments are made after the death of the ADF member. The recent interaction definition of DVA client also includes a small number of cases where the only recorded service or payment has occurred after death.

The definition of DVA client used in this report does not include ADF members whose only interaction with DVA was to make one or more claims that have not been accepted. This is to avoid situations where an individual is reported as a DVA client but has not been determined by DVA as eligible for any support or benefits. The number of ADF members over time who have only made claims that have not been accepted can be found in Supplementary tables S9.1 and S9.2. Note that the rate of suicide for ADF members who have only made claims that have not been accepted is not reported here due to the low numbers of deaths by suicide (Supplementary table S9.3).

Demographic characteristics of DVA clients

Between 2002 and 2021, 113,000 ex-serving ADF members who had served at least one day since 1985 were DVA clients (40% of the full ex-serving cohort). This includes both

alive and deceased ADF members. Most, 98,000, were males (41% of all ex-serving males) and 14,600 were females (33% of all ex-serving females)⁵.

At 31 December 2021, 57,500 male and 13,000 female DVA clients were currently permanent or reserve ADF members, representing around 71% of the permanent and reserve population in 2021. Data for this cohort are in Supplementary tables S9.2 and S9.3, however, the focus of the following analyses is on ex-serving DVA clients.

Supplementary tables S9.4 and S9.6 outline the demographics of the ex-serving DVA client cohorts. Some highlights are presented here.

Among ex-serving members who were alive or had died between 2002 and 2021 and were DVA clients:

- males were on average slightly older (mean age of 54) than the overall ex-serving male cohort (mean age of 52)
- females were on average slightly younger (mean age of 47) than the overall ex-serving female cohort (mean age of 49)
- males and females on average had a longer length of service (17 years for males and 11 years for females) than the overall ex-serving male and female populations (11 years for males and 8 years for females)
- males and females on average had been separated from the ADF for a shorter time (17 years for males and 15 years for females) than the overall ex-serving male and female populations (20 years for both males and females).

At 31 December 2021, of those who separated from 1 January 2003⁶:

- 93% of males and 92% of females who separated for involuntary medical reasons were DVA clients
- 40% of males and 34% of females who separated for voluntary reasons were DVA clients
- 41% of males and 34% of females who separated for other involuntary reasons were DVA clients.

This report identifies the involuntary medical separation group as having a higher rate of suicide. The high proportion of ex-serving members who had accessed DVA services among those who separated for involuntary medical reasons may suggest that this cohort are aware of DVA entitlements and choose to access support as a DVA client. In contrast, among those who have separated for voluntary reasons, a cohort who have lower rates of suicide comparatively, a lower proportion were DVA clients. Among those

⁵ Note, as this analysis covers interactions with DVA by ex-serving ADF members who have served at least one day since 1 January 1985, it does not include the cohort of DVA clients who served in the Vietnam War, Korean War and World War II, and who separated from the ADF prior to 1985.

⁶ Due to a change in the way the reason for separating from the ADF was recorded in 2002, analysis by reason for separation is only reported for ADF members who separated from 1 January 2003 onwards. These members comprise 43% of the ex-serving cohort.

who separated for other involuntary reasons, identified as having a higher rate of suicide, there is also a comparatively lower proportion of DVA clients⁷.

Analysis by time since separation demonstrates changes in the proportions of DVA clients over time. As at 31 December 2021, of ex-serving members who were alive or had died and separated

- less than 1 year ago, 71% of males and 74% of females were DVA clients.
- between 1 and <5 years ago, 66% of males and 65% of females were DVA clients.
- between 5 and <10 years ago, 51% of males and 46% of females were DVA clients.
- between 10 and <20 years ago, 41% of males and 35% of females were DVA clients.
- 20 or more years ago, 33% of males and 22% of females were DVA clients.

This suggests that those who have separated in more recent times are more readily interacting with DVA, which is indicative of changes in policies and eligibility over time, as discussed in the following section.

Trends in DVA clients over time

The proportion of ex-serving ADF members who were DVA clients increased between 2002 and 2021 (see Figure 17) from:

- 21% in 2002 to 41% in 2021 among males
- 13% in 2002 to 34% in 2021 among females

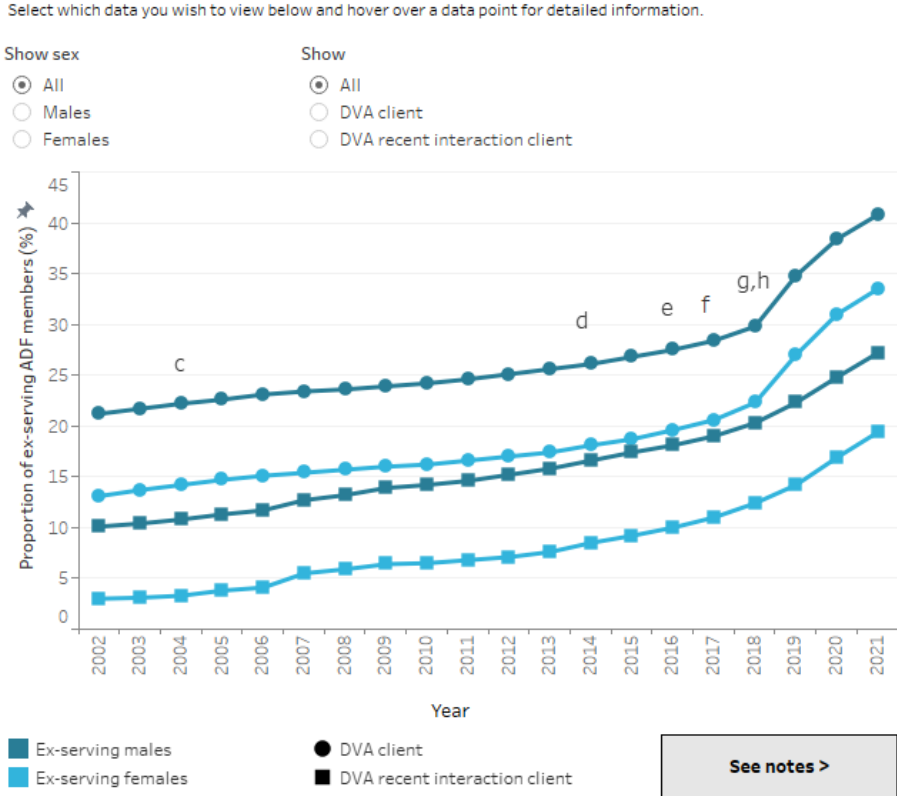
The proportion of ex-serving ADF members who were recent interaction clients increased between 2002 and 2021 as follows:

- 10% in 2002 to 27% in 2021 for males
- 3.0% in 2002 to 19% in 2021 for females

The increase in proportion of ex-serving ADF members who are DVA clients is largely due to the introduction of new programs and policy reforms that focus on the health and well-being of veterans. These have included changes to Non-Liability Health Care (NLHC) arrangement in July 2017, to provide eligible veterans with access to fully funded treatment of all mental health conditions without the need to prove that ADF service caused the conditions. Previously NLHC had been limited to select mental health conditions (see [Technical notes](#) for further information).

⁷ The lower proportion of DVA clients among those separating voluntarily or due to other involuntary reasons may be indicative of historical eligibility requirements for DVA support, in particular prior to recent policy changes which entitle all ADF members transitioning from permanent service to receive a Veteran White Card.

Figure 17: Percentage of ex-serving males and females who were a DVA client or recent interaction DVA client by sex 2002 to 2021^(a)



Notes:

- a. Includes ADF members who were ex-serving and alive at some time between 1 January 2002 and 31 December 2021, and served at least one day since 1 January 1985.
- b. The count by year represents the number of ADF members who were alive, ex-serving, and a DVA client/recent interaction client at any point throughout the year, 1 January–31 December.
- c. 22 December 2004 – Treatment for anxiety and depressive disorders added to Non-Liability Health Care (NLHC).
- d. 1 July 2014 – Treatment for alcohol use disorder and substance use disorder added to NLHC. Eligibility extended for peacetime service post-1994.
- e. 1 July 2016 – Eligibility for 5 mental health conditions under NLHC expands to include all current and ex-serving members of the Australian Defence Force (ADF) with at least one day of continuous full-time service. Claiming made easier by allowing email and phone call to be accepted as a claim and a diagnosis of one of the five mental health conditions to be provided within 6 months.
- f. 1 July 2017 – Treatment for 5 mental health conditions under NLHC expanded to all mental health conditions. Policy changed so that no diagnosis is required to access mental health treatment.

Figure 17 (continued): Percentage of ex-serving males and females who were a DVA client or recent interaction DVA client by sex 2002 to 2021

g. Mid-2018 – Eligibility for the treatment of any mental health condition under NLHC expanded to include reservists that have rendered Reserve Service Days with:

- Disaster Relief Service
- Border Protection Service
- Involvement in a serious service-related training incident

h. Mid-2018 – The White Card on Transition project commenced, with DVA issuing White Cards to transitioning members as they separate from the ADF. The White Card can be used to access Non-Liability Health Care (NLHC) treatment for any mental health condition, at any point in the person's life.

See [DVA – Non-Liability Health Care \(NLHC\)](#) for more information.

Source: AIHW analysis of PMKeyS–NDI–DVA, 1985–2021.

The proportion of ex-serving ADF members who had only made claims that had not been accepted by DVA decreased from 2.2% in 2002 to 1.2% in 2021 among males and from 1.7% in 2002 to 1.2% in 2021 among females.

The proportion of ex-serving ADF members who had served at least one day since 1985, who were cardholders has increased since 2002⁸:

- Veteran White Card holders rose from 11% to 27% in 2021 for ex-serving males and 4.6% to 25% for ex-serving females
- Veteran Gold Card holders rose from 4.3% to 11% in 2021 for ex-serving males, and from 0.7% to 3.8% for ex-serving females

Among ADF members who were permanent or reserve at 31 December 2021, 67% of females and males had a Veteran White Card, and 1.3% of females and males had a Veteran Gold Card.

The proportion of ex-serving ADF members who were Veteran Orange Card holders is not presented due to small numbers (see Supplementary table S9.1). For more information and definitions of the DVA client cardholder types, see [Technical notes](#).

DVA clients who died by suicide

This section presents suicide rates, numbers and proportions of deaths by suicide between 2002 and 2021 broken down by the DVA client status (DVA client and DVA recent interaction client).

⁸ It is important to note that this analysis covers interactions with DVA by ex-serving ADF members who have served at least one day since 1 January 1985, it does not include the ex-serving cohort who separated from the ADF prior to 1985 and may also hold Veteran cards. Due to the scope of data included, these Figures may differ from Figures published by DVA or AIHW which include ex-serving ADF members who separated prior to 1985 and/or dependents.

It is important to note that ADF members who are eligible for DVA support – and who access services funded by DVA – are more likely to have physical and mental health needs that would have led them to DVA. In particular, at 31 December 2021, 93% of the involuntary medical separation cohort was a DVA client compared with 39% of the voluntary separation cohort. The key findings of this report show that the involuntary medical separation group have a higher rate of suicide. These data importantly suggest that DVA support is appropriately provided to this group.

The number and proportion of DVA clients who died by suicide can be found in Table 11. While reading these data it should be remembered that, for the purposes of this report, all recent interaction clients are also part of the DVA client group.

Table 11: Count and proportion of ex-serving ADF members who died by suicide by DVA client status 2002–2021^(a)

DVA client category	Number of males who died by suicide	% of ex-serving ADF males who died by suicide	Number of females who died by suicide	% of ex-serving ADF females who died by suicide
DVA client^(b)	306	29.1%	25	24.8%
DVA recent interaction client^(c)	197	18.7%	16	15.8%
Non-DVA client	747	70.9%	76	75.2%
Total suicides	1,053	100%	101	100%

Notes

a. Note that the Total suicides numbers do not agree with Table 1 because this count runs from 2002-2021 rather than 1997-2021.

b. Includes ex-serving members who met one of the following conditions: had a White or Gold card or received a health service or support service (National Treatment Account or MBS or Hospital separation or ED attendance) or received an income or other payment or had at least one accepted claim. See [Technical notes](#): DVA client definitions for more information.

c. Includes ex-serving members who met one of the following conditions: received a health service or support service through DVA (National Treatment Account or MBS or Hospital separation or Emergency Department (ED) attendance) or received an income payment from DVA in the past 2 years. See [Technical notes](#): DVA client definitions for more information.

Source: AIHW analysis of PMKeyS–NDI–DVA, 1985–2021.

Among permanent and reserve male ADF members who died by suicide, 41% were DVA clients. Among permanent and reserve male ADF members who died by suicide, 16% were recent interaction clients indicating they were in receipt of DVA funded health care or income support in the two years prior to death. DVA clients and recent interaction clients include cases where interactions only occurred after death, for example where compensation has been provided after the death of an ADF member.

Among a small proportion of ADF members who died by suicide, the only interaction recorded with DVA was claims that had not been accepted – 3.9% of permanent and reserve ADF males who died by suicide had only made claims that had not been accepted, and 3.4% of ex-serving ADF males who died by suicide had only made claims that had not been accepted. Non-liability health care and other services such as employment support may still be provided to ADF members without accepted claims.

Of the ADF members who died by suicide between 2003 and 2021⁹

- 65 were males who separated for involuntary medical reasons and were also DVA clients (81% of all suicide deaths among males who separated for involuntary medical reasons)
- 32 were males who separated for other involuntary reasons and were also DVA clients (29% of all suicide deaths among males who separated for other involuntary reasons)
- 25 were males who separated voluntarily and were also DVA clients (30% of all suicide deaths among males who separated voluntarily)

The suicide rates for the DVA client groups and all other ex-serving members are in Table 12 below. As Figures 18 and 19 show, none of these differences are statistically significant, and do not demonstrate a difference between the two groups, largely due to low numbers especially among the female ex-serving cohort.

⁹ Due to a change in the way the reason for separating from the ADF was recorded in 2002, analysis by reason for separation is only reported for ADF members who separated from 1 January 2003 onwards. These members comprise 43% of the ex-serving cohort.

Table 12: Rate of suicide among ex-serving males and females who were DVA clients and non-DVA clients, 2002–2021

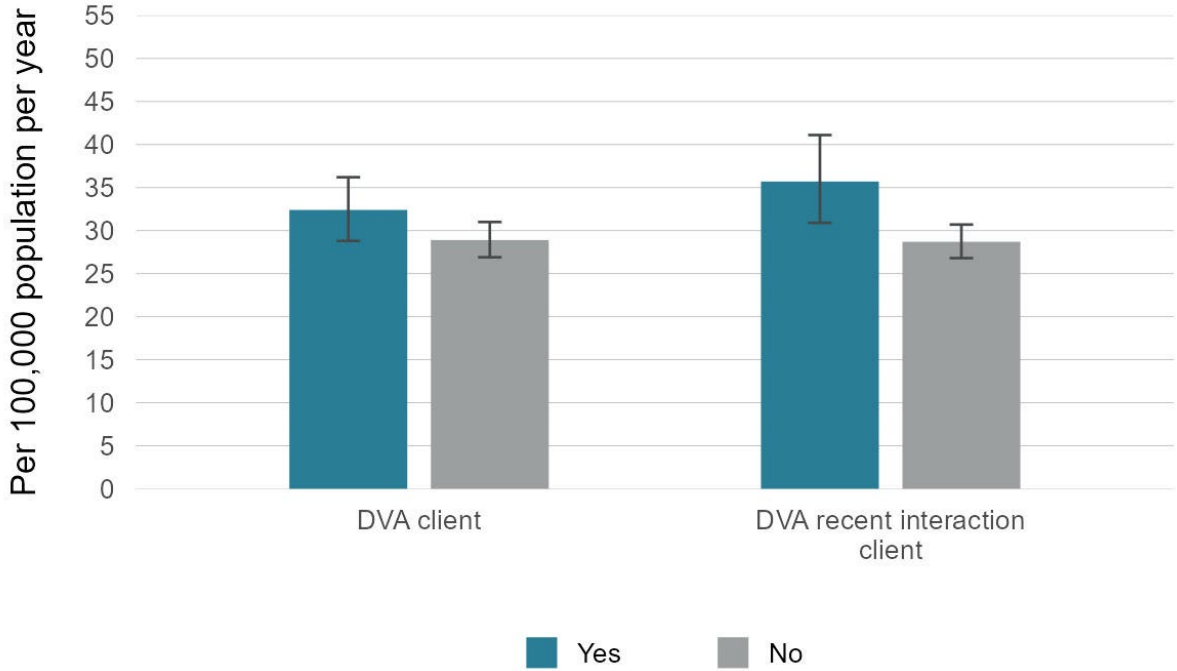
DVA client category	Ex-serving males: Suicide rate per 100,000 population per year	Ex-serving females: Suicide rate per 100,000 population per year
DVA client		
Yes	32.4	19.9
No^(a)	28.9	14.2
DVA recent-interaction client		
Yes	35.7	29.8*
No^(b)	28.7	14.0

Notes:

- a. This group is composed of every member of the ex-serving cohort that is not a DVA client.
 - b. This group is composed of every member of the ex-serving cohort that is not a DVA recent interaction client. DVA clients with no recent interaction are a part of this group.
- * Suicide rates in this Table denoted with a '*' should be interpreted with caution as the number of suicides is fewer than 20. These rates are considered potentially volatile.

Source: AIHW analysis of PMKeyS–NDI–DVA, 1985–2021.

Figure 18: Rate of suicide among ex-serving males who were DVA clients and non-DVA clients, 2002 to 2021

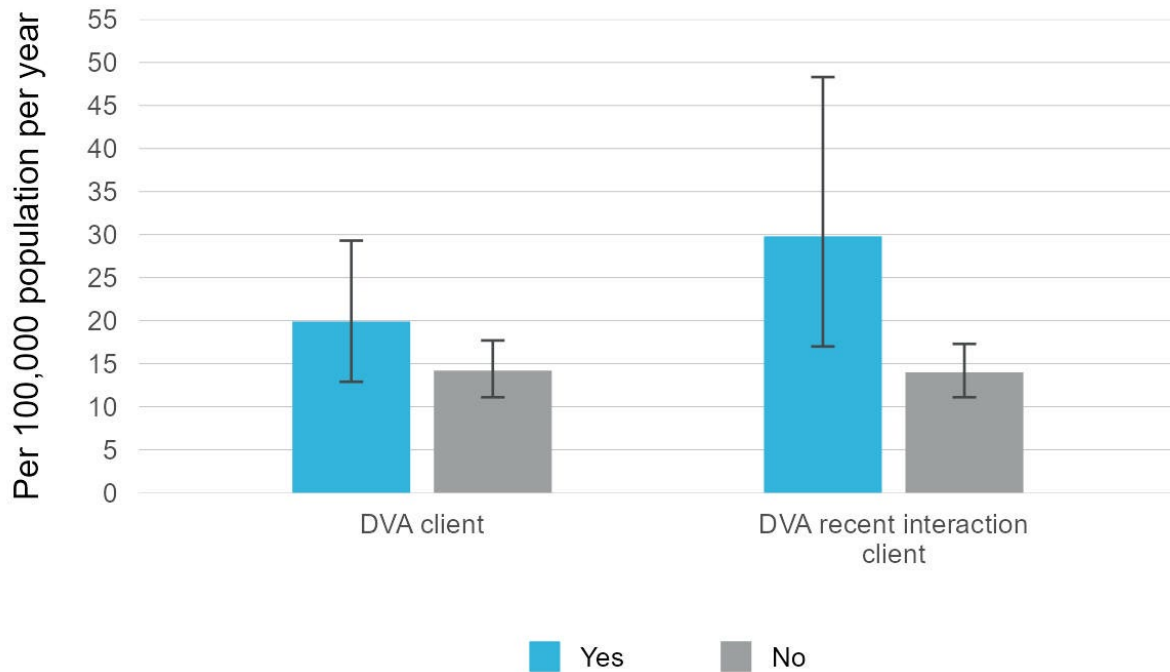


Notes:

- a. DVA recent interaction clients are a subset of DVA clients. Therefore, comparisons for statistical significance of the suicide rate between DVA clients and DVA recent interaction clients should not be made.
- b. Ex-serving members who are non-DVA recent interaction clients include those who are not DVA clients and DVA clients who are not DVA recent interaction clients.
- c. This Figure shows that the differences in the rate of suicide between DVA clients and non DVA clients, and between DVA recent interaction clients and non DVA recent interaction clients, were not statistically significant.

Source: AIHW analysis of PMKeyS-NDI-DVA, 1985-2021.

Figure 19: Rate of suicide among ex-serving females who were DVA clients and non-DVA clients, 2002 to 2021



Notes:

- a. DVA recent interaction clients are a subset of DVA clients. Therefore, comparisons for statistical significance of the suicide rate between DVA clients and DVA recent interaction clients should not be made.
- b. Ex-serving members who are non-DVA recent interaction clients include those who are not DVA clients and DVA clients who are not DVA recent interaction clients.
- c. This Figure shows that the differences in the rate of suicide between DVA clients and non DVA clients, and between DVA recent interaction clients and non DVA recent interaction clients, were not statistically significant.

Source: AIHW analysis of PMKeyS-NDI-DVA, 1985-2021.

Data underlying this section are available in Supplementary tables S9.8 and S9.9. These Tables include suicide rates among ex-serving ADF members by DVA client status and service-related characteristics including separation reason.

Continued research into the 2 DVA client groups, incorporating additional factors such as health conditions related to claims made to DVA, may provide further insight into the health and wellbeing outcomes for ex-serving ADF members.

Help or support

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Frequently asked questions

What is the AIHW report: Serving and ex-serving Australian Defence Force members who have served since 1985 suicide monitoring 1997 to 2021?

The Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2021 report is a statistical report that presents both counts and incidence rates of suicides for members of the ADF who have at least one day of service between 1 January 1985 and 31 December 2021, with the suicides monitored over the period 1 January 1997 to 31 December 2021. Information in the report is presented by age, sex, rank, length of service, time since separation and reason for separation.

What are the differences between the content of this report, compared with the previous report?

The previous edition included members with at least one day of ADF service between 1 January 1985 and 31 December 2020 with a suicide monitoring period between 1 January 1997 and 31 December 2020. The previous report included a Cox proportional hazards model and analyses of psychosocial risk factors associated with suicide.

Why is the count of suicides in the 2023 report different to the 2022 report?

An additional 78 suicide deaths are reported here compared with the 2022 report. The breakdown of changes in the number of suicide deaths reported is as follows:

- 69 suicide deaths that occurred in 2021
- 9 additional suicide deaths identified in 2020 (and/or 2019) due to a lag in reporting cause of death
- 7 additional suicide deaths identified in 2007 (1), 2012 (2), 2013 (1), 2015 (3) due to updated information in the NDI or newly identified linkages
- 7 fewer deaths in 2011 (2), 2014 (2), 2016 (2), 2019 (1) due to updates in cause of death information

Despite these changes in suicide totals the rates of suicide amongst serving and ex-serving members of the ADF remain largely consistent between this report and ones previously published. Due to changes in monitoring period and study cohort care should be taken in comparing data in this report with previous AIHW publications. It is more useful to focus instead on suicide rates, as these give a better indication of the risk of suicide to different groups within the ADF population.

Which populations are studied in this report?

This report uses information from the Defence Personnel Management Key Solution (PMKeyS) which started on 1 January 2001 together with a range of Defence historical personnel systems used prior to 2001 to develop a list of all members who had served at least one day since 1 January 1985. This is then linked to the National Death Index. Deaths are reported from 1 January 1997 to 31 December 2021.

Why are suicide rates only reported from 1997 onwards?

Suicide rates are not provided prior to 1997 due to data in the NDI being incomplete or otherwise unusable before this date, meaning the linkage between the Defence personnel data and the deaths data is liable to miss deaths. As such it was deemed unworkable to extend the death analysis earlier than 1997 for population analysis study purposes.

Why does the ADF population only include those with ADF service from 1 January 1985 onwards?

Due to limitations in historical Department of Defence personnel records, the study population does not include ADF members with service prior to 1 January 1985.

Why is there a two-year lag in suicide data?

The assembling and national reporting of deaths by suicide has up to a two-year time lag. Deaths that are referred to a coroner (including deaths by suicide) can take time to be fully investigated by the relevant State or Territory jurisdiction. To account for this, all coroner-certified deaths registered after 1 January 2006 are subject to a revisions process. This allows cause of death for open coroner's cases to be included at a later stage where the case is closed during the revision period. Cause of death data compiled by the ABS are deemed preliminary when first published, with revised and final versions of the data being historically published 12 and 24 months after initial processing.

What is the definition of veteran for this report?

A person who is serving or has served at least one day in the ADF since 1 January 1985.

How do ADF rates of suicide compare to the Australian population?

Overall, males serving in a permanent capacity and males in the reserves are about half as likely to die by suicide as Australian males.

Ex-serving ADF members are at a higher risk of suicide than Australian males though this group is not homogeneous, with likely other factors contributing to differing rates of suicide for subpopulations.

Notably, ex-serving males who separate for voluntary reasons are no more likely to die by suicide than the general Australian male population. Those ex-serving males who separate involuntarily are more likely to die by suicide than the Australian population.

Compared with the Australian population, suicide rates (after adjusting for age) between 1997 and 2021 were: 49% lower for male permanent ADF members; 45% lower for reserve ADF males; 26% higher for ex-serving ADF males; and 107% (or 2.07 times) higher for ex-serving ADF females.

Why are some ADF sub-groups compared to the Australian population and others are not?

To understand whether ADF members have differing characteristics and experiences as well as risk factors for suicide, it is important to compare them with the general Australian population. It is also important to note the ADF population age and sex demographics are different from the Australian population¹⁰ and may be a contributing factor to observed differences.

These age and sex differences are considered when examining differences in suicide levels between these populations, and comparisons are presented where these differences are controlled. In this report comparisons to the Australian population are presented for analysis of ADF sub-groups of age, sex, service status (permanent, reserve and ex-serving), prior service status (permanent ex-serving and reserve ex-serving) and reason for separation.

There are measures under study which are less meaningful when compared with Australian population due to underlying factors such as service (Army, Navy, Air Force), rank, length of service and time since separation. For these ADF sub-groups this study compares them to categories within the same sub-group (for example, Army is compared with Navy and Air Force).

A challenge for further investigation is improving data on ADF comparator populations, for instance, to enable comparing involuntary medical separations to people with similar medical conditions, or including comparisons between other socio-economic factors such as employment-status, income, household situation, etc. These analyses are currently out of scope for this report series.

Who are the 'at-risk' groups in the ADF population?

The 'at-risk' groups are those who had a higher rate of suicide than other ADF groups: higher rates were associated with ex-serving members who left involuntarily, were aged under 50 years, and had served for less than one year. In particular, the suicide rate of males who left for involuntary medical reasons was 3 times higher than those who

¹⁰ To illustrate, the permanent, reserve and ex-serving ADF populations have different age structures with median ages of 31, 37 and 52 years respectively compared with 38 years for the Australian population. While the permanent, reserve and ex-serving populations are 84% male, and the Australian population is 50% male.

separated voluntarily (67.1 compared with 21.5 per 100,000 population per year in ex-serving males).

Multi-factor analysis was performed in the previous edition of this series which investigated the risk factors with more detail (AIHW 2022).

Why does the report not discuss the effect of prior operational experience on suicide rate?

The cohort of members with reliably recorded operational experience is quite small compared with the other variables considered in this report. Operational experience was only recorded with accuracy from 2001 onwards, and since we are interested in a full account of a member's operational history that means we must confine our analyses to ex-serving members who were hired during or after 2001. This means 24% of the total 1985–2021 study cohort can be considered in these analyses. Moreover, of this reduced cohort only 28% have more than zero operational experience. And of this group 43 died by suicide. This significantly curtailed cohort of interest is the reason this calculation has proved so difficult.

Univariate analysis of the suicide rates of these zero and greater than zero operational experience cohorts is unable to find any statistical differences between them.

How do ADF rates of suicide compare to international military and defence forces?

The following is sourced from the Phoenix Australia [ADF members and ex-members suicide literature review: An update | Royal Commission into Defence and Veteran Suicide](#) (17 Oct 2023).

For serving defence force members there is evidence from the United Kingdom (UK) and New Zealand that corresponds with Australian evidence that suicide rates are lower amongst current serving military males than in the general male population, though this is not universal. In Canada, Germany and the United States (US), evidence suggests that rates of suicide amongst current serving males are equivalent to or higher than those in the general male population, with younger soldiers and those serving in the Army at particular risk.

For male ex-serving defence force members, in concurrence with evidence from Australia, rates from the US and Canada suggest that male ex-serving defence members are at higher risk of dying by suicide than the general male population, though this is not universal. The UK, the Netherlands, and to an extent Sweden are notable in that suicide mortality was lower for ex-serving military males than in the general male population.

For female ex-serving defence force members, those in the Canadian Armed Forces had an increased rate of suicide compared to the general female population, as similarly observed among Australian female ex-serving members.

Did ADF rates of suicide change during COVID-19?

On March 2020 the World Health Organisation (WHO) declared COVID-19 as a pandemic (WHO 2020). As of 31 July 2023, 19,510 Australians have died with or from COVID-19 where COVID-19 became the third leading cause of death in Australia in 2022 (ABS 2023, ABS 2022). While there has been a rise in the use of mental health and crisis services during the COVID-19 pandemic, the pandemic was found not to be associated with a rise in suspected deaths by suicide in 2020 and 2021 among the general Australian population (AIHW 2023). Similarly, using preliminary mortality data for deaths information from 2020 and 2021, findings in this report show that the suicide rates among ADF permanent, reserve, or ex-serving males and ex-serving females in the 3-year period of 2019–2021 were not significantly different to the respective suicide rates of the previous 3-year period of 2016–2018 (see Figure 2). This trend was also observed among US veteran cohorts (US Department of Veteran Affairs 2023).

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Technical notes

Changes to previously published suicide information

An additional 78 suicide deaths are reported here compared with the 2022 report. The breakdown of changes in the number of suicide deaths reported is as follows:

- 69 suicide deaths that occurred in 2021
- 9 additional suicide deaths identified in 2020 (and/or 2019) due to a lag in reporting cause of death
- 7 additional suicide deaths identified in 2007 (1), 2012 (2), 2013 (1), 2015 (3) due to newly identified linkages
- 7 fewer deaths in 2011 (2), 2014 (2), 2016 (2), 2019 (1) due to updates in cause of death information in the NDI

As well as the expansion of the suicide monitoring period and addition of a new year of cause of death data, there are 3 main reasons for changes to previously published suicide results, as described below.

Lag in cause of death information

Analysis in this study is based on year of occurrence of death. The NDI is the source of information on fact of death in this study. Fact of death information from the NDI is supplemented with cause of death information from the National Mortality Database (NMD). Analysis of the NMD for all Australian deaths shows that between 4% and 7% of deaths are not registered until the next year (ABS 2018). These deaths are not captured in cause of death information, until data for the next year become available, and so there is usually a small number of suicides in each report that should have been the year prior's data but were only confirmed after publication.

Cause of death data revisions (ABS)

Cause of death information for the *Serving and ex-serving Australian Defence Force members who have served since 1985: detailed analysis from 1997 to 2021* release is based on final cause of death information for the years 2001 to 2019. Revised data are used for 2020 and preliminary data for 2021. Cause of death for a small number of records linked to the 2019 (revised) and 2020 (preliminary) cause of death data may change where a death is being investigated by a coroner and more up-to-date information becomes available as a result of the ABS revisions process. This may have a small effect on the number of deaths attributed to suicide in these years, as some deaths currently coded as 'undetermined intent' could later be identified as 'intentional self-harm' (or vice-versa).

Although this method likely captures the vast majority of suicides, there is potential for some to be missed if coronial findings take longer than 4 years and the finding results in an update to the initial coded intent of death.

Care needs to be taken when interpreting data derived from deaths registered in Victoria. Following investigations between the ABS and the Victorian Registry of Births, Deaths and Marriages, 2,812 additional registrations from 2017, 2018 and 2019 were identified that had not previously been provided to the ABS. A time series adjustment has been applied to these deaths to enable a more accurate comparison of mortality over time. Affected deaths are presented in the year in which they were registered (that is, removed from 2020 and added to 2018 or 2019). For detailed information on this issue please refer to Technical note: Victorian additional registrations and time series adjustments in Causes of death, Australia (ABS cat. no. 3303.0) available from the ABS website.

Improvements in information available to the study

Changes to previously published results may also occur as additional information becomes available to the study.

For example, differences in data collection methods and policy around timing of death registration can affect when and how the data is recorded in the ABS collection. Data users should note the potential impact of these changes when making comparisons between reference periods. While such changes will not explain all differences between years, they are a factor that may influence the magnitude of any changes in suicide numbers as revisions are applied (ABS 2018).

Improvements in available information and linkage processes over time have also resulted in additional suicides being identified for periods previously reported on.

Australian Bureau of Statistics (ABS) changes to mortality coding over the study period

The following information on mortality coding is sourced from the ABS. For further information, see the ABS [Causes of death, Australia](#) report (ABS 2018).

Substantial changes to ABS cause of death coding were undertaken in 2006, improving data quality by enabling the revision of cause of death for open coroner's cases over time. Deaths that are referred to a coroner (including deaths due to suicide) can take time to be fully investigated. To account for this, all coroner-certified deaths registered after 1 January 2006 are subject to a revisions process. This allows cause of death for open coroner's cases to be included at a later stage where the case is closed during the revision period. Cause of death data are deemed preliminary when first published, with revised and final versions of the data being historically published 12 and 24 months after initial processing. Between 2001 and 2005, revisions did not take place and as such it is recognised by the ABS that deaths by suicide may have been understated during this period (ABS 2018).

As well as the above changes, new coding guidelines were applied to deaths registered from 1 January 2007. The new guidelines improve data quality by enabling deaths to be coded as suicide by ABS mortality coders if evidence from police reports, toxicology

reports, autopsy reports and coroners' findings indicates the death was due to suicide. Previously, coding rules required a coroner to determine a death as due to suicide for it to be coded as suicide.

The combined result of both changes has been the more complete capture of deaths by suicide, and a reduced number of deaths coded as 'undetermined intent', within Australian mortality data. The National Coronial Information System (NCIS) also continually makes improvements and enhancements to their system which allows for ABS coding to be accessed in a more timely fashion.

Detailed information on coding guidelines for intentional self-harm, and administrative and system changes that can have an impact on the mortality data set, can be found in Explanatory Notes 91-100 of Causes of death, Australia report (ABS 2018).

Suicide incidence rates

This report uses incidence rates to measure how often suicide occurs amongst the 3 ADF service groups, as well as in the Australian population. The incidence rate is the total number of deaths by suicide in a population over a specific period of time, divided by population time at risk during this time. In this study, the sum of the population at 30 June in each year of the relevant period is used as a proxy for population time at risk. Suicide incidence rates are expressed as the number of deaths per 100,000 population per year.

Rates based on small numbers

Rates based on small numbers of events can fluctuate from year to year for reasons other than a true change in the underlying risk of the event.

In this report, rates are not reported when there are fewer than 5 events, as rates produced using small numbers can be sensitive to small changes in counts of deaths over time.

In this report, rates denoted with an asterisk (*) should be interpreted with caution as the number of events is fewer than 20. These rates are considered potentially volatile.

Standardised mortality ratios

Age-adjusted comparisons between the suicide rate in each of the 3 ADF service status groups and the Australian population were calculated using Standardised Mortality Ratios (SMRs). The SMR is a widely recognised measure used to account for differences in age structures when comparing death rates between populations. This method of standardisation can be used when analysing relatively rare events, that is, where number of deaths is less than 25 for the analysed time period. The SMR is used to control for the fact that the ADF service status groups have a younger age profile than

the Australian population, and rates of suicide vary by age in both the study populations and the Australian population. The SMRs control for these differences, enabling comparisons of suicide counts between the service status groups and Australia without the confounding effect of differences in age.

The SMR is calculated as the observed number of events (deaths by suicide) in the study population divided by the number of events that would be expected if the study population had the same age and sex specific rates as the comparison population. SMRs greater than 1.0 indicate a greater number of suicides in the ADF population than expected; and SMRs less than 1.0 indicate a lower number of suicides than expected in the ADF population.

Unlike suicide rates, SMRs only provide information about the 2 populations the statistic is based on. Comparing SMRs cannot be used to draw conclusions about the relative adjusted mortality rates of the study populations. This is because each SMR measure provides a comparison that is specific to the 2 populations involved.

Comparisons with the Australian population are not calculated for other breakdowns such as by length of service and rank as only adjusting for age and sex does not account for all the differences in the populations. In addition, it is considered more useful to compare between the different levels of these groups rather than with the Australian population.

Confidence Intervals

This report uses confidence intervals of 95% in the calculation of rates and SMRs. Broadly speaking wider CIs imply less certainty around a calculated value, and narrower CIs imply more certainty. Specifically, a CI at 95% suggests that repeated samples calculating the CI in the same manner would contain the true value 95% of the time.

Using confidence intervals to test for statistical significance

Statistical significance is based on a measure that indicates how likely it is that an observed difference, or a larger one, would occur under the conditions of the null hypothesis.

In this study, 95% confidence intervals (CIs) are provided for each standardised mortality ratio (SMR) and suicide rate to indicate the level of uncertainty around these estimates due to random fluctuations in the number of suicides over time. Estimates produced using low numbers can be sensitive to small changes in numbers of deaths over time and will therefore have wide CIs. CIs at 95% are provided within this report as they may account for the variation in absolute numbers of deaths by suicide over time (related to the small sample size). These assume that the suicide counts used in this analysis can be described by a Poisson distribution.

It is important to note that there are other sources of uncertainty, such as the linkage error, that are not captured by the provided CIs.

Use of CIs is the simplest way to test for significant differences between service groups and Australian comparison groups. For the purpose of this report, differences are deemed to be statistically significant if CIs do not overlap with each other (when comparing suicide rates) or 1.0 (in the case of an SMR). The CIs in this report cannot be used to determine the significance of differences between rates calculated for overlapping 3-year time periods.

Where the CIs are wide, for example in the case of the SMR for ex-serving females, sensitivity analysis was conducted. This analysis found that slight changes to the numbers of suicides did not significantly alter the result.

Population and suicide monitoring period

The population used in this report includes all ADF members who have served at least one day since 1 January 1985. As of 31 December 2021, around 385,000 Australians had served at least one day in the ADF between 1 January 1985 and 31 December 2021. Of these, 368,000 were still alive, comprising 60,000 permanent, 38,700 reserve, and 269,000 ex-serving.

[Box 2](#) above gives more information on the ADF population used in this report and how it compares to the Australian population. Last year's report was based on ADF members with at least one day of service since 1 January 1985 who died by suicide between 1 January 1997 and 31 December 2020. The current report uses the same ADF cohort, plus the 2021 data.

For more information on the demographics of this population, see the report: [Serving and ex-serving Australian Defence Force members who have served since 1985: population characteristics 2019](#)

ADF suicide deaths in the period 1 January 1985 to 31 December 1996

This publication reports 1,677 confirmed suicide deaths that occurred between 1 January 1997 to 31 December 2021 among ADF members who have served at least one day since 1 January 1985.

There were also 330 confirmed suicide deaths discovered by analysis of the period 1 January 1985 and 31 December 1996, meaning a total of 2,007 confirmed suicide deaths that occurred between 1 January 1985 to 31 December 2021 among ADF members who have served at least one day since 1 January 1985.

Confirmed suicide deaths prior to 1997 were not included in this analysis as these are under reported compared to the suicides identified post-1997, due to the quality and

completeness National Death Index (NDI) dataset, as there are gaps in identifying data in the NDI which limits the ability to link to Defence personnel data. Therefore, while we are confident that all the confirmed suicides included are true ADF member confirmed suicides, there may be more unlinked and unknown. As such any population study analysis of suicide deaths during this period would be misleading.

For completeness, the number of discovered suicides per year 1985–1996 is given below in Table 13.

Table 13: Number of known deaths by suicide by year, ADF service status groups, 1985–1996

Year	Permanent and Reserve	Ex-serving	Total in all ADF service groups ^(a)
1985	<i>n.p.</i>	<i>n.p.</i>	13
1986	<i>n.p.</i>	<i>n.p.</i>	7
1987	<i>n.p.</i>	<i>n.p.</i>	11
1988	<i>n.p.</i>	<i>n.p.</i>	11
1989	9	15	24
1990	7	16	23
1991	11	17	28
1992	11	22	33
1993	14	31	45
1994	8	35	43
1995	9	39	48
1996	13	31	44
Total^(b)	112	218	330

n.p. Not available for publication but included in totals where applicable, unless otherwise indicated. In this case this is a result of low numbers being potentially identifying.

Notes:

a. Consists of deaths by suicide in males and females for permanent, reserve and ex-serving ADF members.

b. Suicide numbers are likely to be under-reported for this period 1985 to 1996 as there are gaps in identifying data in the National Death Index (NDI) which limits the ability to link to Defence personnel data. Therefore, while we are confident that all the confirmed suicides included are true ADF member confirmed suicides, there may be more unlinked and unknown.

Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

Ex-serving ADF members with permanent service and reserve service

Ex-serving ADF members can have either served in the permanent or reserve forces, or a combination of both over their ADF service career. The level of service duties and obligations vary greatly between the two, with permanent forces expected to render higher levels of service than reserves.

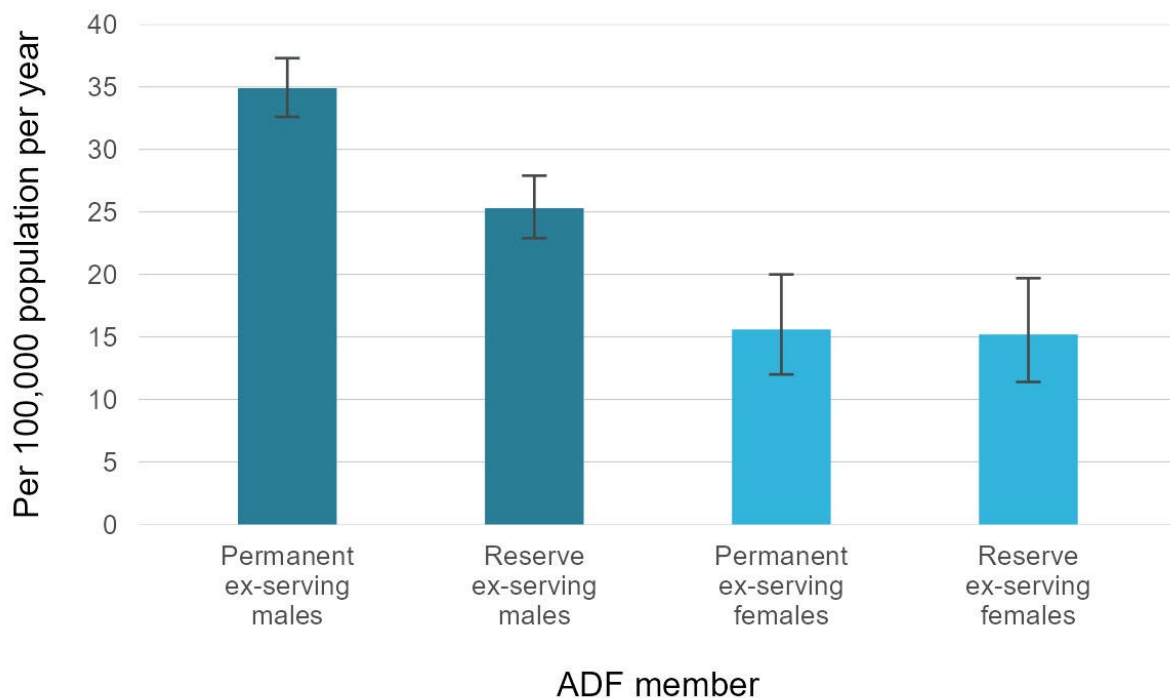
For this note, ex-serving members who were at any time engaged in permanent service will be considered 'permanent ex-serving', even if they were engaged in reserve service before fully separating. By contrast, those who joined and served solely in a reserve capacity will be considered 'reserve ex-serving'.

Between 1997 and 2021 the suicide rates for the ex-serving cohort were:

- 34.9 per 100,000 population per year for permanent ex-serving males
- 25.3 per 100,000 population per year for reserve ex-serving males
- 15.6 per 100,000 population per year for permanent ex-serving females
- 15.2 per 100,000 population per year for reserve ex-serving females.

These values are shown in the Figure 20 below.

Figure 20: Suicide rates for permanent ex-serving and reserve ex-serving, males and females, 1997–2021



Source: AIHW analysis of linked Defence historical personnel data–PMKeyS–NDI data 1985–2021.

This Figure demonstrates that there is a higher suicide rate among permanent ex-serving males compared with reserve ex-serving males. It should be noted that most involuntary medical separations come from the permanent ex-serving cohort, which may explain this difference in rates (see the *Suicides by reason for separation* section). There was no corresponding statistically significant difference among the female cohorts.

While suggestive of a difference between permanent and reserve service, the decision to keep these groups aggregated statistically was made to not further limit an already small study population. As such the ex-serving cohort in this report contains all ex-serving members. For further analysis on the permanent ex-serving cohort including comparisons of suicide rates with the general Australian population and suicide rates by service-related characteristics, see Supplementary tables S8.1 to S8.3.

Data underlying this section are available in Supplementary tables S4.1 and S4.2. See [Data](#) for a link to the tables.

Other Defence Personnel factors that may be of interest

The Defence Personnel (PMKeyS) data contains other factors beyond those discussed in this report, that may be informative to analysis of ADF member suicide, notably:

- promotions and demotions
- the unit¹¹ a member worked within in the ADF
- the location a member lived in during their time with the ADF
- the occupation¹² a member performed within the ADF

Preliminary analyses on these variables revealed that the frequency with which members move around the ADF makes it difficult to disentangle the effects of one specific rank change, unit, location or occupation on the ultimate suicide outcome. A more determined effort with more specialised statistical methods may yield insights into these aspects of ADF service, but for now they remain outside the scope of this analysis.

Operational experience¹³ is also captured in the PMKeyS data, but the cohort of members for whom it was reliably recorded is quite small compared with the other variables considered in this report. Operational experience was only recorded with accuracy from 2001 onwards, and since we are interested in a full account of a member's operational history that means we must confine our analyses to ex-serving members who were hired during or after 2001. This means 24% of the total 1985–2021 study cohort can be considered in these analyses. Of which only 28% have had any

¹¹ 'Unit' in terms of ADF service refers to the organisation within Defence where a member served.

¹² 'Occupation' here refers to the specific job a member performed while with the ADF.

¹³ 'Operational experience' covers a wide span of operation types, they can be overseas or domestic, and can be warlike or non-warlike. Regardless of the types of operational experience investigated the results described here hold.

operational experience and among those with operational experience, 43 died by suicide. This significantly curtailed cohort of interest is the reason this calculation has proved so difficult. Univariate analysis of the suicide rates of these zero and greater than zero operational experience cohorts is unable to find any statistical differences between them.

Limitations in the study population

The study population does not include ADF members with service prior to 1 January 1985. The analysis is constrained by technical limitations in Department of Defence systems and information infrastructure for records before 1985.

Rehires

In previous years, a complex procedure was used to identify rehires between Defence personnel (PMKeyS) data extracts, and include these individuals in the ex-serving population in the time between re-hires. This was not possible this year, so it may be that the total ex-serving population is slightly underestimated.

Potential disparity due to dates mismatch between study cohort and suicide monitoring

The study population used in this report comprises of all members with ADF service since 1 January 1985, whereas suicide rates are calculated from 1997 to 2021. This gap between the beginning of the study period (1985) and the monitoring period (1997), meaning there are suicides from the period 1985 to 1996 that are not captured in this analysis.

Therefore, for the ex-serving population, there is potentially a slight bias in the suicide rate towards those who live longer (1997 onwards) for those who have served from 1985. However, the inclusion of the post-1985 cohort allows for a more complete picture of the deaths by suicide post-1997 among more of the ex-serving population. Sensitivity analysis demonstrated that the ex-serving suicide rate from 1997 to 2021 were no different when considering those who have served since 1985 compared to considering only those who have served since 1997.

Grouping of reasons for separation

The reason for separation in this report describes the main reason recorded for a person's separating (discharging) from the ADF. Analysis by reason for separation is presented for the following groups:

- Voluntary separation: includes voluntary redundancies and resignations
- Involuntary separation: includes personnel deemed unsuitable for further duty for disciplinary, medical and operational reasons. Involuntary separation is further divided into separation for medical reasons, and non-medical involuntary separation (which includes being physically unfit for service, training failure and disciplinary reasons).
- Contractual/administration: include contractual change and/or changes in Defence personnel system (for example, transitioning of payroll system to PMKeyS introduced from 2001).

DVA client definitions

This note discusses the specific definitions used in this report for DVA client status groups.

DVA client

A DVA client under the broad definition used in this report is an ADF member who satisfies at least one of the following criteria

- has been issued a White, Orange or Gold card
- had at least one accepted claim for a health or disability condition accepted as being related to service
- has received or is receiving benefits or payments
- has received at least one health service or support service through the DVA National Treatment Account

This definition does not include ADF members who submitted claims to DVA which have not been accepted, and who otherwise did not meet the above criteria.

The definition of DVA client is inclusive of ADF members regardless of the date of contact with DVA, including where the only recorded accepted claim, card issue, benefit, payment or service occurred after death. For example, this definition includes cases where compensation payments are provided to family members after the death of an ADF member. The recent interaction definition of DVA client includes a small number of cases where the only recorded service, or regular income payment, has occurred after death.

Since mid-2018 permanent ADF members transitioning to civilian life are now issued a Veteran Card (White Card), which entitles them to treatment for all mental health conditions under the Non-Liability Health Care program. This policy change means that most ex-serving ADF members who have transitioned since mid-2018 will be included among DVA clients.

DVA recent interaction client

A DVA client under the 'Recent interaction' definition used in this report is an ADF member who meets the criteria for being a client per the broad definition above and is currently actively receiving a benefit from the department. A DVA client under recent interaction definition is an ADF member who satisfies the following

- Meets the criteria under the definition of DVA client status given above along with at least one of the following
 - received benefits or payment in the form of income support or compensation that are considered to be a primary income source, in the past 2 years
 - received at least one health service or support service funded through the DVA National Treatment Account in the past 2 years

An individual eligible for a primary form of income or DVA funded service they had not received in the past 2 years would not be considered a Recent interaction DVA client.

ADF members who are alive are considered a recent interaction client at a point in time if they received one of the designated payments or services in the prior 2 years. ADF members who have died are considered a recent interaction client at death if they had received one of the designated income payments or DVA funded services in the 2 years prior to death, or on or after death.

Income and payments considered a primary form of income for the purposes of the recent interaction client definition include the following:

- Incapacity Payments
- Permanent Impairment Payments
- Special Rate Disability Pension
- Disability Compensation Payment
- Service Pension – Age
- Service Pension – Invalidity
- Social Security Age Pension (where administered by DVA)

Health and support services include any DVA funded public and private hospital admissions, public hospital emergency department presentation, or MBS services, as well as other DVA services (including Allied Health, Community Nursing, Medical, Other TAS, Pharmacy, Private Hospitals Unique Items, Public Hospital Episode, Rehabilitation & Compensation, Rehabilitation Appliance Program, Transport, Veterans Home Care).

Data limitations

DVA record data was obtained from DVA with near complete DVA interactions were captured from 1 January 2000 onwards, noting that records of emergency department episodes are only available from 1 July 2015, and Compensation Scheme payments from 06 July 2004. While interactions before 1 January 2000 are less comprehensive, many

interactions spanning from 1 January 1985 were still available and therefore were considered in the analyses.

DVA client cardholders

Veteran cards are provided to identify the eligibility of current and former ADF members, and their dependents for a range of benefits. These can include health care, pharmaceutical benefits and other benefits and concessions. There are several types of cards issued to DVA clients with the White card being the most common card type.

Policy changes over time have affected the types of conditions that qualify for benefit, the entitlements for benefit, and the process for submitting claims to DVA. For example, since July 2017 all current and former ADF personnel have been entitled to non-liability health care (NHLC) for all mental health conditions. Since July 2018, all personnel separating from the ADF have been automatically issued with a DVA Veteran Card that entitles them to non-liability health care for any mental health. ADF members are considered DVA clients from the date they are issued a card.

Veteran Gold Cards

Holders of a Gold Card are entitled to DVA funding for all clinically necessary health services related to all health conditions, regardless of whether or not they were related to service (DVA, 2023).

Veteran White Cards

White Card holders are entitled to health services related only to conditions accepted as relating to service (DVA, 2023). However, cases of malignant cancer, pulmonary tuberculosis, and any mental-health condition do not have to be due to service-related causes.

From 1 July 2018, eligibility for treatment of any mental health condition expanded to include Reservists who have rendered Reserve Service Days with disaster relief service, border protection service or involvement in a serious service-related training incident. In addition, the White Card on Transition project commenced, with DVA issuing White Cards to transitioning members as they separate from the ADF.

Orange Cards

Orange Card holders are entitled to access prescription medicines, wound care items and nutritional supplements at a concession rate. Orange cards cannot be used for medical or other healthcare treatment. A Veteran Orange Card is issued to Commonwealth and allied veterans and mariners who meet all of the following

- they have qualifying service from the First World War or the Second World War
- they are aged 70 or over
- they have been resident in Australia for 10 years or more

DVA claims

For this paper purposes, a processed claim refers to

- a claim lodged for compensation relating to a health or disability condition related to service; and
- has been assessed by DVA with a decision outcome (accepted or rejected) for the claimed condition under the appropriate legislation

Accepted or Rejected Claims

Accepted processed claims include the following decision outcomes: accepted, aggravated by war service (eligible for treatment), attributable to war service (eligible for treatment), paired organs and limbs policy applied or remitted.

Rejected processed claims include the following decision outcomes: Attributable to war service – not eligible for treatment, deleted, deferred, no incapacity found, no jurisdiction, refused to deal with, rejected or suspended.

Legislative Framework for Compensation and Rehabilitation of Veterans

There are 3 main Acts that determine how DVA provide ADF members with health care and benefits. The applicable Act to cover an ADF member will depend on when they served and the type of military service they performed (DVA 2021b).

- Veterans' Entitlements Act 1986 (VEA)
- Safety, Rehabilitation and Compensation (Defence-related Claims) Act 1988 (DRCA)
- Military Rehabilitation and Compensation Act 2004 (MRCA)

The Acts have different eligibility requirements and provide different levels of support to veterans through different claims and appeals processes. Veterans with multiple impairments may be covered under different Acts.

Acronyms

ABS	Australian Bureau of Statistics
ADF	Australian Defence Force
AIHW	Australian Institute of Health and Welfare
CI	Confidence Interval
DVA	Department of Veterans' Affairs
ICD	International Statistical Classification of Diseases and Related Health Problems
NCIS	National Coronial Information System
NDI	National Death Index
NMD	National Mortality Database
PMKeyS	Personnel Management Key Solutions
SMR	Standardised Mortality Ratio
WHO	World Health Organisation

Data sources

The information in this report is based on fact of death information from the National Death Index and cause of death information from the National Mortality Database as well as information on members of the 3 ADF service status groups from Department of Defence payroll systems and DVA client interactions from the Department of Veterans' Affairs administrative systems. The details of these sources are as follows:

- **National Mortality Database (NMD).** Cause of Death Unit Record File data are provided to the AIHW by the Australian Coordinating Registry as compiled by the ABS on behalf of Registrars of Births, Deaths and Marriages. Cause of death and demographic items are coded by the ABS from data originating from the Registrars of Births, Deaths and Marriages and the NCIS (managed by the Victorian Department of Justice and Community Safety). The data are maintained by the AIHW in the NMD. In this study, the NMD is used in the calculation of Australian rates and SMRs, and is the same source of information on cause of death as used in the NDI.
- **National Death Index (NDI).** The NDI is managed by the AIHW and contains person-level records of all deaths in Australia since 1980 obtained from the Registrars of Births, Deaths and Marriage in each state and territory. Its use is confined to data linkage studies approved by the AIHW Ethics Committee for health and medical research. NDI records are supplemented with cause of death information from the NMD. In this study, the NDI is linked with Defence payroll data to create the linked Defence payroll-NDI data set used in analysis of suicide in the ADF population.
- **Department of Defence personnel system data.** The Department of Defence compiled a file of current and historical Defence personnel systems covering ADF members who have served since 1 January 1985. This combines PMKeyS, Core HR system, D1, CENRESPAY (for reservists), ADFPAY (for permanent members) and other historical payment systems. The Department of Defence and AIHW assessed the resulting file for completeness and duplicates. Comparisons were made with records from Department of Defence annual reports and other sources to validate the list. Data from the National Archives was also investigated for its suitability in validation, however as the majority of records are electronic files based on photos of paper records, this was not usable.
- **Department of Veterans' Affairs.** Administrative data are provided to the AIHW by the Department of Veterans' Affairs, these comprise DVA client data and DVA National Treatment Account data extracted from current DVA systems. The active information infrastructure contains data only for DVA clients who are alive or died on after 1 January 2000. In this study, the DVA data are linked with Defence payroll-NDI data sets and used in analysis of DVA client status among the ADF population.

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- Department of Veteran's Affairs
- Australian Bureau of Statistics
- Royal Commission into Defence and Veterans Suicides

Ethical approval for the study was provided by the AIHW Ethics Committee and the Departments of Defence and Veterans' Affairs Human Research Ethics Committee.

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Finally, the AIHW also thanks Mindframe for providing review and advice on the appropriate and sensitive way to report on suicide.

Notes

Data quality statement

The data quality statement underpinning the NDI can be found at: [National Death Index \(NDI\), Data Quality Statement](#)

The data quality statements underpinning the AIHW National Mortality Database can be found in the following Australian Bureau of Statistics (ABS) publications:

- ABS quality declaration summary for [Deaths, Australia methodology, 2021](#)
- ABS quality declaration summary for [Causes of Death, Australia methodology, 2020](#)

For more information on the AIHW National Mortality Database, see [Deaths data at AIHW](#) and the [National Mortality Database](#).

Data

See Data page of the web report [*Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2021*](#) for data tables.

Report Editions

This release

- 21 Nov 2023

[*Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2021*](#)

Previous releases

- 16 Nov 2022

[*Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2020*](#)

- 09 Oct 2020

[*National suicide monitoring of serving and ex-serving Australian Defence Force personnel: 2020 update*](#)

- 29 Nov 2019

[*National suicide monitoring of serving & ex-serving ADF personnel*](#)

- 21 Sep 2018

[*National suicide monitoring of serving and ex-serving Australian Defence Force personnel: 2018 update*](#)

- 19 Jan 2018

[*Incidence of suicide in serving and ex-serving Australian Defence Force personnel: detailed analysis 2001-2015*](#)

- 30 Jun 2017

[*Incidence of suicide among serving and ex-serving Australian Defence Force personnel 2001-2015: in brief summary report*](#)

- 30 Nov 2016

[*Incidence of suicide among serving and ex-serving Australian Defence Force personnel 2001-2014*](#)

Formats

See Formats page of the web report [*Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2021*](#) for alternative formats of this report.

Related Material

See Related material page of the web report [*Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2021*](#) for a summary infographic.

Appendix

Suicide rates by age group

Figure 5: Rate of suicide, ex-serving and Australian males by age, 1997-1999 to 2019-2021

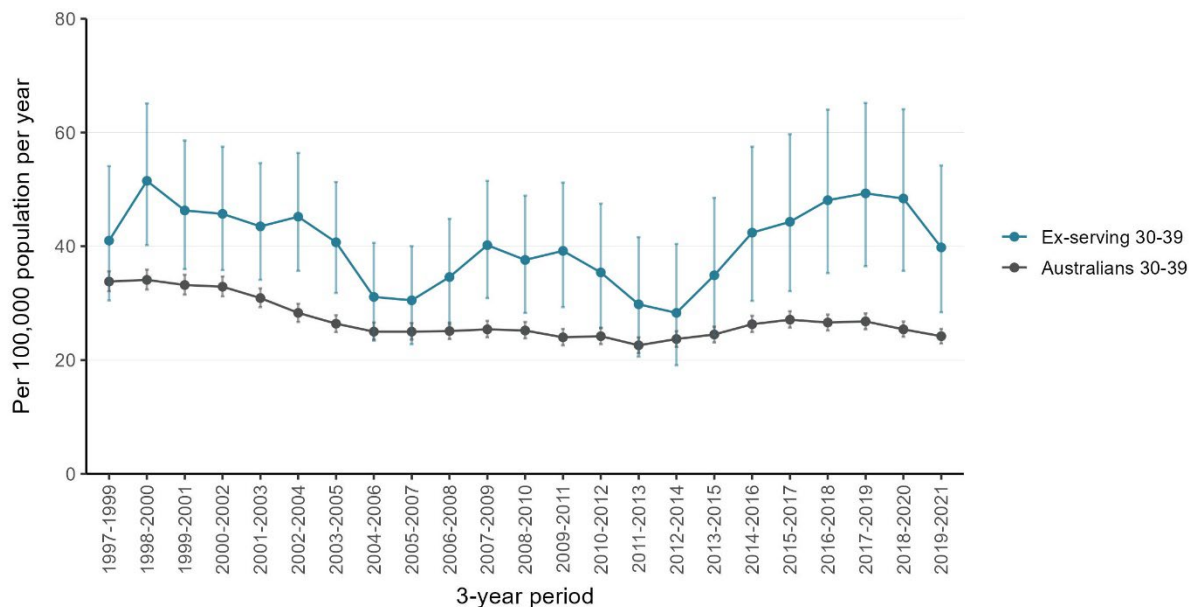


Figure 5: Rate of suicide, ex-serving and Australian males by age, 1997-1999 to 2019-2021

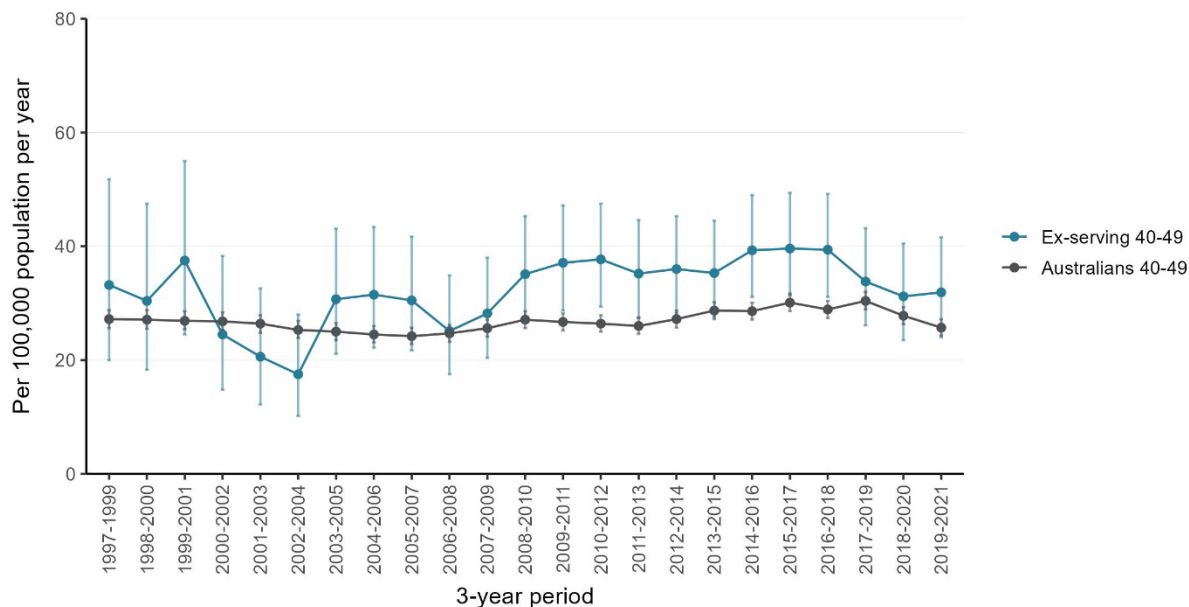
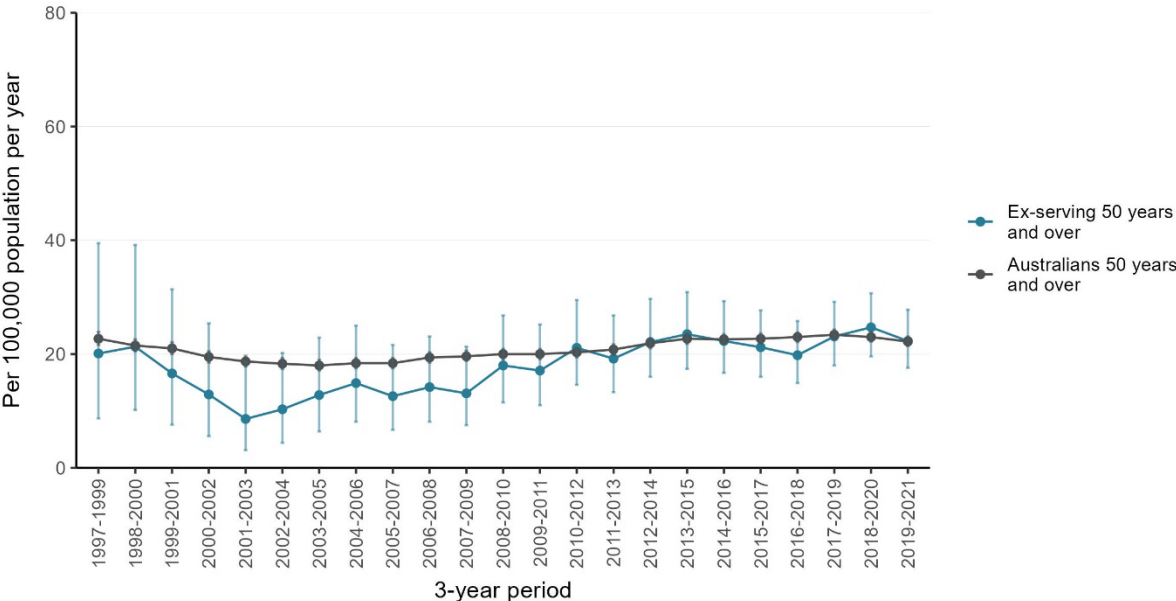



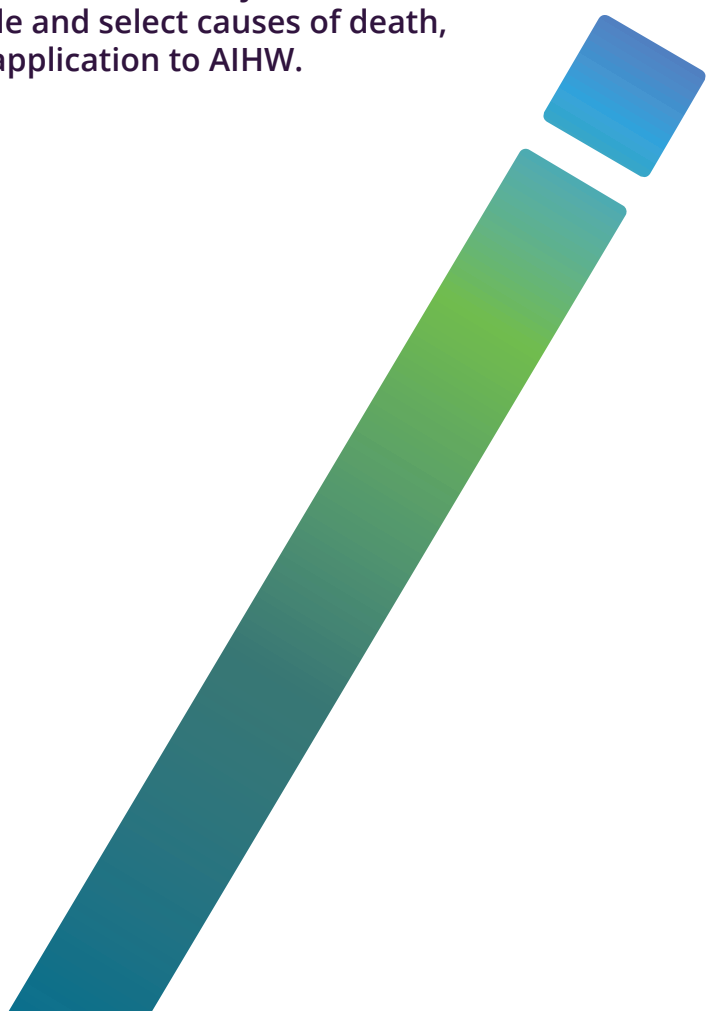
Figure 5: Rate of suicide, ex-serving and Australian males by age, 1997-1999 to 2019-2021





This report is the sixth annual update monitoring suicides among permanent, reserve and ex-serving Australian Defence Force (ADF) members. The population of ADF members under consideration are those who served between 1985 and 2021. Permanent and reserve male ADF members die by suicide at about half the rate of Australians of similar age, while ex-serving male members have a higher rate than Australian males.

This edition of the report is released in conjunction with a separate web article: Suicide and select causes of death, 1997 to 2021, available on application to AIHW.



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