

Socioeconomic characteristics of ex-serving ADF members who died by suicide

Web report | Last updated: 11 Oct 2022 | Topic: [Veterans](#)

About

Suicide by ADF members, like suicide in the Australian population, is an ongoing and complex public health issue. Ex-serving ADF members as a population group are at increased risk of suicide (AIHW 2021a, 2021b). This report investigates socioeconomic characteristics for ex-serving ADF males with at least one day of service since 1 January 2001 in relation to deaths by suicide between 9 August 2011 and 31 December 2018.

This analysis was prepared for the Royal Commission into Defence and Veteran Suicide for their interim report that was published 11 August 2022.

Cat. no: PHE 312

Findings from this report:

- [Younger ex-serving males \(17-24\) were 4 times more at risk of suicide compared with older ex-serving males \(45-80\)](#)
- [Widowed/separated/never married ex-serving males were 4 times more at risk of suicide relative to those who were married](#)
- [Ex-serving males living alone were 6 times more at risk of suicide compared with those in a couple family with children](#)
- [Ex-serving males earning \\$200-599 per week were 7 times more at risk of suicide relative to those earning \\$1,500 or more](#)

Note: Separated includes ex-serving ADF males who were either separated or divorced.

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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 of death by suicide for 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 report investigates potential socioeconomic risk and protective factors for ex-serving Australian Defence Force (ADF) males with at least one day of service since 1 January 2001 in relation to deaths by suicide between 9 August 2011 and 31 December 2018.

Findings from this report show that ex-serving ADF males who died by suicide were more likely to be younger, widowed, divorced or separated, have never married, to have a lower income or to have lived alone than the total ex-serving ADF male population.

The unique nature of ADF service exposes members to both protective and risk factors that may impact health outcomes during and after their military service. These experiences mean some ex-serving ADF members may encounter challenges in everyday living that differ to the Australian population. Previous studies of the health and wellbeing of ADF members have highlighted the importance of understanding the risk and protective factors for suicide (Baker et al. 2017; NMHC 2017; SFADTRC 2017; Productivity Commission 2019; Jones et al. 2020).

Suicide prevention of ADF members is an important consideration for positive health and welfare outcomes for ADF members and of significant public interest. Suicide has profound impacts on family, friends and communities. Every life lost to suicide in the veteran population is a tragedy and service men and women in the ADF are a critical part of the Australian community, particularly in their role in the defence of Australia. Suicide by ADF members, like suicide in the Australian population, is an ongoing and complex public health issue. Suicide can affect anyone—regardless of their personal characteristics and family background—but some populations are at greater risk. Ex-serving ADF members as a population group are at increased risk of suicide (AIHW 2021a, 2021b).

Higher risk of dying by suicide for ex-serving ADF males was associated with:

- younger ages i.e. aged between 17-24 years, compared with those aged 45-80 years.
- being never married or widowed, divorced or separated, compared with those who were in a registered or de facto marriage.
- living alone or in a one parent family with children compared with those living in a couple family with no children.
- living in a rented dwelling compared with those living in an owned outright or with a mortgage.
- earning between \$200-399 in weekly personal income compared with those earning \$1,500 or more.

It is important to note that while these factors may be associated with an increased risk of suicide, they cannot be considered a direct cause. The factors that can lead someone to suicide can be complex and often involve a mixture of causal and circumstantial risk factors (Open Arms 2019a). A combination of factors can contribute to increased risk. Further, a presence of protective factors may reduce the risk of suicide.

If you need help or support, please contact:

[Open Arms - Veterans and Families Counselling](#) 1800 011 046

[Open Arms Suicide Intervention page](#)

[Defence All-hours Support Line \(ASL\)](#) 1800 628 036

[Defence Member and Family Helpline](#) 1800 624 608

[Defence Chaplaincy Support](#) 1300 333 362

[ADF Mental Health Services](#)

[Lifeline](#) 13 11 14

[Suicide Call Back Service](#) 1300 659 467

[Beyond Blue Support Service](#) 1300 22 4636

For information on support provided by DVA, see:

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

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Introduction

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Overview

This report analyses a cohort of ex-serving ADF males who had at least one day of service since 1 January 2001 and died by suicide between 9 August 2011 and 31 December 2018. The AIHW has undertaken comprehensive analysis to identify potential demographic and socioeconomic factors related to death by suicide among ex-serving ADF males. The analysis compares the cohort with the total ex-serving ADF male population, and with the general Australian male population who died by suicide, where possible.

The analysis:

- compares the socioeconomic characteristics of ex-serving ADF males who died by suicide with the total ex-serving ADF male population to provide insight into risk or protective factors for ex-serving ADF males.
- compares the socioeconomic characteristics of ex-serving ADF males who died by suicide with Australian males who died by suicide to identify potential differences that may be associated with ADF service.

Background

This analysis was prepared for the Royal Commission into Defence and Veteran Suicide (Royal Commission) for its interim report that was published 11 August 2022.

The Royal Commission was established on 8 July 2021. Mr Nick Kaldas APM, the Hon James Douglas QC, and Dr Peggy Brown AO have been appointed as Royal Commissioners. The Royal Commissioners presented the Interim Report of the Royal Commission into Defence and Veteran Suicide to the Governor-General, His Excellency, General the Honourable David Hurley AC DSC (Retd) on 11 August 2022, and it was tabled in Parliament on 11 August 2022^[1], and will subsequently be required to produce a final report by 17 June 2024. The Royal Commission will be conducted independently of Government, including the Department of Defence (Defence) and Department of Veterans' Affairs (DVA).

The AIHW is engaging with the Royal Commission and providing technical expertise in veterans' data linkage, integration and analysis relevant to the Terms of Reference^[2] of the Royal Commission.

This project complements the existing AIHW veterans' health and welfare program that aims to build a comprehensive profile of the health and welfare of Australia's serving and ex-serving ADF population. This project also builds on the broader suicide work conducted by the AIHW about the whole Australian population.

Suicide prevention of ADF members is of significant public interest and a particular consideration for enabling positive health and welfare outcomes for ADF members. Understanding how selected demographic and socioeconomic characteristics affect the risk of death by suicide is important to better inform strategies to reduce suicide in Australia and may help in the planning of more effective evidence-based prevention and intervention programs.

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

About the MADIP project

This report is one of the first data integration projects to use Linkage Spine Interoperability (von Sanden 2020) that enables the Department of Defence (Defence) personnel data held at AIHW to be combined with data held at the Australian Bureau of Statistics (ABS) from the Multi-Agency Data Integration Project (MADIP) data asset without the need to share personal identifying information between each organisation. Linkage Spine Interoperability increases the efficiency of creating integrated data products between two agencies, reduces risks of sharing personal information, and facilitates better use of person-centred data enabling the expansion of research to be undertaken (PMC 2020).

Both the AIHW and the ABS are [accredited Integrating Authorities](#). As such, they are responsible for ensuring data integration projects are conducted in sound, ethically approved and secure ways, and that researchers are provided safe and secure access to the integrated data. This data integration project was approved by both the AIHW Ethics Committee and the Departments of Defence and Veterans' Affairs Human Research Ethics Committee (DDVA HREC).

The ABS is trusted as the accredited Integrating Authority for MADIP. The ABS collects and combines the data, provides access to authorised researchers, and protects individual privacy and keeps the information available in MADIP secure at all times. More information on MADIP is available from the [ABS website](#).

This report used the same linked Defence data in MADIP as the following AIHW report: *Understanding the wellbeing characteristics of ex-serving ADF members, Introduction* published 1 September 2022 (AIHW 2022).

The main sources of data for this report were the 2011 Census of Population and Housing and ABS Cause of Death/Deaths Registrations data, to identify potential socioeconomic characteristics associated with greater risk of death by suicide among ex-serving ADF males.

Data Limitations

There are some challenges and limitations with the analysis of linked administrative data that should be noted, namely:

- bias from linkage errors where records cannot be linked
- data sources are of varying quality
- limitations in the time period to which data are available
- limitations with the study population.

Also, deaths by suicide are statistically rare events. Small numbers can raise privacy and confidentiality issues but also statistical concerns. For this report, values based on small numbers of deaths have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability. Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context. Further information can be found in the [Technical notes](#).

What is included in this report?

This report includes information on selected demographic and socioeconomic characteristics of ex-serving ADF members who had served at least one day since 1 January 2001. The total ex-serving ADF male population includes those who were alive or had died (including by suicide) during the study period (9 August 2011 to 31 December 2018). Socioeconomic characteristics analysed in this report include; marital status, education, employment, income, housing circumstances and living arrangements.

This report is based on ex-serving ADF members with at least one day of service since 1 January 2001 and were ex-serving as of 30 June 2011, to ensure they were ex-serving and alive at the time of the 2011 Census.

Of these 64,100 ex-serving ADF members, 7 in 10 (71%) linked to the 2011 Census data in MADIP which resulted in an in-scope population of 45,700 ex-serving ADF members (37,900 ex-serving ADF males and 7,800 ex-serving ADF females) aged between 17-80 years.

Of the in-scope 37,900 ex-serving ADF male population, the majority (98%) were alive for the duration of the study period and 1.9% had died between 9 August 2011 and 31 December 2018. Of the in-scope ex-serving ADF male population, 73 (0.2%) had died by suicide between 9 August 2011 and 31 December 2018.

The small number of observed deaths by suicide among ex-serving ADF females prevents robust statistical analysis and interpretation of data for females. Therefore, this report only considers ex-serving ADF males aged 17-80 years.

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

Table 1: Ex-serving ADF males who were alive or had died

	Number	Proportion (%)
Alive ^(a)	37,236	98.1
Died ^(b)	711	1.9
Died by suicide ^(c)	73	0.2
Total ex-serving ADF males ^(d)	37,947	100.0

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

(a) Includes individuals who were alive at the time of 2011 Census, had a Census record and who were still alive during the study period between 9 August 2011 and 31 December 2018 inclusive.

(b) Includes individuals who were alive at the time of 2011 Census, had a Census record and who had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive. Includes all causes of death.

(c) Includes individuals who were alive at the time of 2011 Census, had a Census record and who had died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) The total ex-serving ADF male population includes individuals who were alive at the time of 2011 Census, had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

Who is included in this report and what information is presented about them?

Population 1: Ex-serving ADF males with at least 1 day of service since 1 January 2001 who were ex-serving as of 30 June 2011 and were alive on 2011 Census night: Information presented for this population is sourced from 2011 Census and Personnel Management Key Solution (PMKeyS), and includes: marital status, education, employment, income, housing circumstances and living arrangements, demographic and service-related characteristics. This population includes those who were alive or had died (including by suicide) during the study period (9 August 2011 to 31 December 2018).

Population 2: Ex-serving ADF males with at least 1 day of service since 1 January 2001 who were ex-serving as of 30 June 2011, were alive on 2011 Census night but died by suicide between 9 August 2011 and 31 December 2018: Information presented for this population is sourced from 2011 Census, PMKeyS and ABS Cause of Death/Deaths Registrations, and includes: marital status, education, employment, income, housing circumstances and living arrangements, demographic and service-related characteristics. ABS Cause of Death/Deaths Registrations data was analysed in MADIP to identify those who died by suicide between 9 August 2011 and 31 December 2018. Population 2 is a subset of Population 1.

Population 3: Australian males who were alive on 2011 Census night: Information presented for this population is sourced from 2011 Census and includes: marital status, education, employment, income, housing circumstances and living arrangements. This population includes those who were alive or had died (including by suicide) during the study period (9 August 2011 to 31 December 2018).

Population 4: Australian males who were alive on 2011 Census night but died by suicide between 9 August 2011 and 31 December 2018: Information presented for this population is sourced from 2011 Census and ABS Cause of Death/Deaths Registrations, and includes: marital status, education, employment, income, housing circumstances and living arrangements. ABS Cause of Death/Deaths Registrations data was analysed in MADIP to identify those who died by suicide between 9 August 2011 and 31 December 2018. Population 4 is a subset of Population 3.

Further information on the data sources and population scope can be found in the [Technical notes](#).

Notes on measures in this report

Information on suicide factors is presented in three ways in this report:

- Counts and proportions, to give an indication of the size and distribution of the population.
- Proportion ratios, to compare the proportions between two groups (e.g. to compare ex-serving ADF males who died by suicide with all ex-serving ADF males).
- Risk ratios (RR), also referred to as relative risk, measure the risk between groups to a specific reference group. Risk ratios were calculated by dividing the risk (cumulative incidence) in one group by the risk (cumulative incidence) in a reference group.

Confidence intervals (CIs) of 95% are provided for proportion ratios and risk ratios to indicate the level of uncertainty around these estimates due to random fluctuations in the number of suicides. CIs give some indication of how close the true measure is likely to lie to the calculated measure. Narrower confidence intervals indicate more certainty in the result, and wider intervals means less certainty in the result.

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

[1] [Interim Report | Royal Commission into Defence and Veteran Suicide](#)

[2] [Terms of reference | Royal Commission into Defence and Veteran Suicide](#)



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What are the service-related characteristics of the ex-serving ADF males?

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[Why did they leave the ADF?](#)

This section explores the service-related characteristics of ex-serving ADF males who died by suicide between 9 August 2011 and 31 December 2018 and the total ex-serving ADF male population (who were alive or had died) during the same time period. The reference date for these service-related characteristics is as of 30 June 2011.

Further detailed information regarding suicide rates by ADF service-related characteristics can be found in the *Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 2001 to 2019* and the updated annual report is due to be published in November.

Where do they live?

Three in 10 (30%) ex-serving ADF males lived in Queensland in 2011. A further 24% lived in New South Wales and 18% lived in Victoria.

Due to small numbers, only counts and proportions for ex-serving ADF males who died by suicide could be reported for New South Wales, Victoria and Queensland.

Table 2: Ex-serving ADF males who died by suicide and total ex-serving ADF males^(a) by state and territory, as at 30 June 2011^(b)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex-serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)
State or Territory: New South Wales	22	30.1	9,053	23.9
State or Territory: Victoria	10	13.7	6,680	17.6
State or Territory: Queensland	20	27.4	11,352	29.9
State or Territory: South Australia	n.p.	n.p.	2,759	7.3
State or Territory: Western Australia	n.p.	n.p.	4,292	11.3
State or Territory: Tasmania	n.p.	n.p.	1,286	3.4
State or Territory: Northern Territory	n.p.	n.p.	n.p.	n.p.
State or Territory: Australian Capital Territory	n.p.	n.p.	1,799	4.7
Other territories ^(e)	n.p.	n.p.	n.p.	n.p.
Total ex-serving ADF males	73	100.0	37,947	100.0

n.p. - not available for publication but included in totals where applicable.

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Other territories include the Territories of Cocos (Keeling) Islands, Christmas Island and Jervis Bay.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

What service were they in?

The ADF has three service branches: the Royal Australian Navy (Navy), the Australian Army (Army) and the Royal Australian Air Force (Air Force). Though uncommon, an individual may move between services over their career. This section describes the last service the person was in at the time of their separation from the ADF (the date at which they left the ADF).

Almost two-thirds (65%) of ex-serving ADF males had separated from the Army, with similar proportions separating from the Navy (18%) and the Air Force (17%). Among ex-serving ADF males who died by suicide, 7 in 10 (70%) had separated from the Army, almost 2 in 10 (19%) had separated from the Navy and just over 1 in 10 (11%) had separated from the Air Force.

Table 3: Ex-serving ADF males who died by suicide and total ex-serving ADF males^(a) by service, as at 30 June 2011^(b)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex-serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)
Service: Navy	14	19.2	6,635	17.5
Service: Army	51	69.9	24,807	65.4
Service: Air Force	8	11.0	6,505	17.1
Total ex-serving ADF males	73	100	37,947	100

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

What rank were they?

Rank describes organisational and workforce structures that determine a member's position, conditions, opportunities and entitlements (such as pay and conditions). The analysis here is based on rank at time of separation. It is presented in two broad groups: Commissioned Officers, and Other Ranks.

Of the ex-serving ADF males, almost 1 in 5 (18%) were Commissioned Officers at time of separation. The majority of ex-serving ADF males who died by suicide (92%) held Other Ranks, and only 8.2% were Commissioned Officers.

Table 4: Ex-serving ADF males who died by suicide and total ex-serving ADF males^(a) by rank, as at 30 June 2011^(b)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex-serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)
Rank: Commissioned Officer ^(e)	6	8.2	6,949	18.3
Rank: All ranks other than Commissioned Officer ^(f)	67	91.8	30,997	81.7
Total ex-serving ADF males ^(g)	73	100.0	37,947	100.0

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes

(a) Excludes individuals who were an overseas visitor.

(b) The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Ranks that hold leadership and managerial positions, denoted with the rank code prefix 'O' (O01 - O10).

(f) Ranks that are involved with general operations, denoted with the rank code prefix 'E' (E00 - E10).

(g) Sum of ex-serving ADF males does not equal total as there was 1 ex-serving ADF male (who was still alive) who did not have a recorded rank.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

How long did they serve?

Length of service describes the time between joining the ADF and separation. This report presents, length of service in three groups, ranging from less than 1 year to 5 years or more.

At the time separation, the most common length of service for both the total ex-serving ADF male population and those who died by suicide was 5 years or more (62% and 44% respectively).

Ex-serving ADF males who died by suicide were more likely to have served less than 1 year (26%) compared with the total ex-serving ADF male population (15%).

Table 5: Ex-serving ADF males who died by suicide and total ex-serving ADF males^(a) by length of service, as at 30 June 2011^(b)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex-serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)
Length of service: < 1 (years)	19	26.0	5,591	14.7
Length of service: 1 - <5 (years)	22	30.1	8,818	23.2
Length of service: 5 or more (years)	32	43.8	23,538	62.0
Total ex-serving ADF males	73	100.0	37,947	100.0

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

How recently did they leave the ADF?

The time between separation from the ADF and 30 June 2011 is presented in three groups ranging from less than 1 year to 5 years or more.

The most common length of time since separation for both the total ex-serving ADF male population and those who died by suicide was 5 years or more (57% and 45% respectively).

Table 6: Ex-serving ADF males who died by suicide and total ex-serving ADF males^(a) by time since separation, as at 30 June 2011^(b)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex- serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex- serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)
Number of years since separation ^(e) : < 1	10	13.7	3,765	9.9
Number of years since separation ^(e) : 1 - <5	30	41.1	12,706	33.5
Number of years since separation ^(e) : 5 or more	33	45.2	21,476	56.6
Total ex-serving ADF males	73	100.0	37,947	100.0

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) The period between separation date and 30 June 2011.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

Why did they leave the ADF?

The reasons that ADF members separate from the ADF are categorised into three broad groups: voluntary separation, involuntary medical separation and involuntary other separation.

The separation point used in this report reflects full separation from the ADF, that is, when a member is no longer permanent or reserve. Separation reason is therefore the recorded reason for leaving the last engagement with the ADF. Due to a change in the way the reasons for separating the ADF were recorded during 2002, analysis in this report is presented only for ADF members who left between 1 January 2003 onwards to 30 June 2011.

Just over 2 in 5 (42%) ex-serving ADF males separated voluntarily and nearly half (49%) separated involuntarily. Of those who separated involuntarily, about 1 in 9 (12%) did so for medical reasons and 1 in 3 (37%) for other involuntary reasons.

Values based on small numbers of deaths have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability.

Table 7: Ex-serving ADF males who died by suicide and total ex-serving ADF males ^(a) by separation reason, as at 30 June 2011 ^(b)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^{(c)(d)}	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^{(c)(d)}	Number of total ex-serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)
Separation reason ^(f) : Voluntary separation	18	n.p.	12,028	42.3
Separation reason ^(f) : Involuntary separation - Other involuntary separation	21	n.p.	10,556	37.1
Separation reason ^(f) : Involuntary separation - Involuntary Medical separation	20	n.p.	3,265	11.5
Separation reason ^(f) : Total involuntary separation	41	n.p.	13,821	48.6
Separation reason ^(f) : Other reasons	n.p.	n.p.	2,582	9.1
Total ex-serving ADF males with a separation reason	n.p.	n.p.	28,431	100.0

n.p. - not available for publication but included in totals where applicable.

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census.

(c) Proportions for ex-serving ADF males who died by suicide are not publishable due to risk of identification with small numbers in the "Other reasons" group.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Due to a change in the way reasons for separating the ADF was recorded during 2002, analysis is presented only for ADF members who left between 1 January 2003 and 30 June 2011.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

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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 of death by suicide for 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](tel:131114), or Defence All-hours Support Line on [1800 628 036](tel:1800628036), 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.

[Cancel](#)

Socioeconomic characteristics and selected demographics

On this page:

[How old were they?](#)

[What was their relationship status?](#)

[What was their highest level of educational attainment?](#)

[How many were employed?](#)

[How much did they earn?](#)

[What are their housing circumstances?](#)

[How many people did they normally live with?](#)

In this section, the selected demographics and socioeconomic characteristics of ex-serving ADF males with at least one day of service since 1 January 2001 who died by suicide between 9 August 2011 and 31 December 2018 (the study period) are compared with the total ex-serving ADF male population (who were alive or had died) and Australian males who died by suicide during the same time period.

Findings show that ex-serving ADF males who died by suicide were more likely to be younger, to have never married, to have a lower income or to have lived alone than the total ex-serving ADF male population.

Data considerations

In order to understand whether or not ex-serving ADF males have different characteristics and experiences as well as risk and protective factors for suicide, it is important to compare them with other Australian males. However, this presents a number of statistical challenges and it is very important to understand what the limitations are and what should be considered when interpreting the data.

Crude proportions are presented in this section with comparisons made using proportion ratios. These ratios represent the total observed differences between the cohorts being compared. Differences in the age structure between the populations is likely to be one of the contributing factors to the differences in the proportion ratios that have been observed and caution must be taken in concluding that differences are due to ADF service-related characteristics.

Furthermore, this approach does not take into account the relationships between different characteristics and how these may interact to affect suicide rates. The results presented below have not been adjusted for age as the data could not meet requirements to do so. Readers should take this into consideration when interpreting the results presented.

It is difficult to infer patterns or trends in some of the selected demographics and socioeconomic characteristics because small numbers mean that some results are not able to be published. Values based on small numbers of deaths have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability or high volatility. Volatility is related to the size of the study cohort and the number of deaths observed. This means that when comparing small cohorts with other groups, we have less confidence that small observed differences reflect differences in underlying cohort risks.

How old were they?

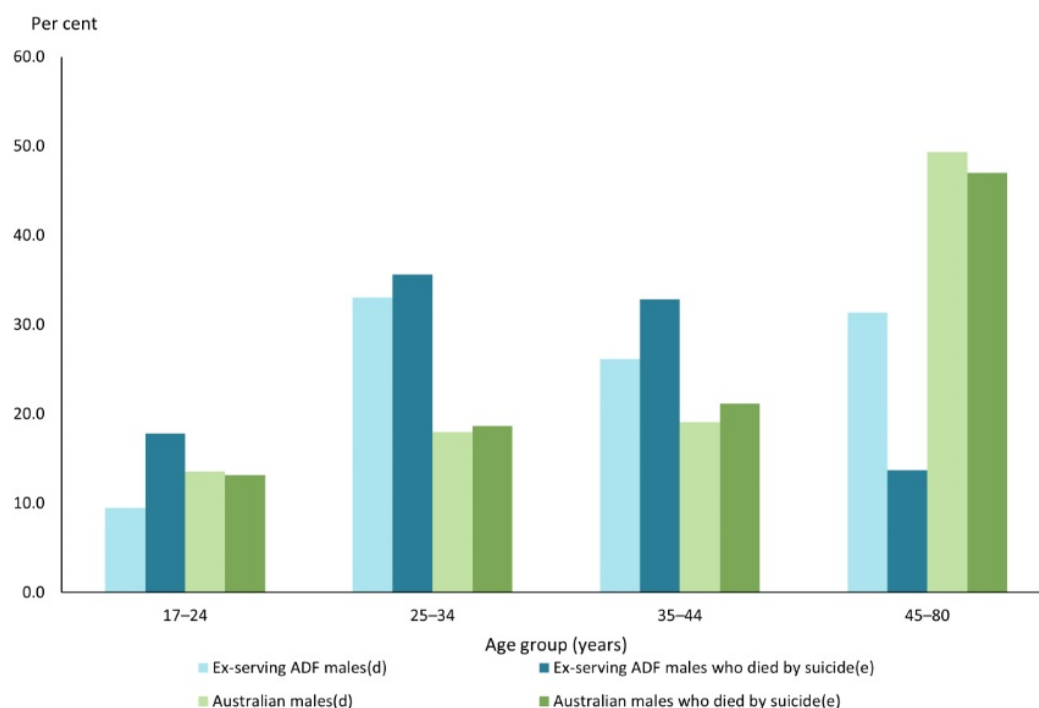
The age structure for the total ex-serving ADF males was different to Australian males. Ex-serving ADF males were more likely to be aged 25-44 years and less likely to be aged 45-80 years.

While the proportion of total ex-serving ADF males aged 17-24 years (10%) was lower compared to Australian males (14%), they were relatively more likely to have died by suicide (18%) compared with Australian males who died by suicide (13%).

Ex-serving ADF males who died by suicide were almost twice as likely to be aged 25-34 years (36%) as Australian males who died by suicide (19%) of the same age.

The majority of ex-serving ADF males who died by suicide were aged under 45 years (86%) with an average age of 34 years. In comparison, more than half (53%) of Australian males who died by suicide were aged under 45 years with an average age of 44 years.

Figure 1: Proportion of ex-serving ADF males^(a) and Australian males^(a) by age group^(b), as at 2011 Census^(c)



Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Age at Census (9 August 2011). The age range was limited to 17-80 years for both ex-serving ADF males and Australian males.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

Table 8: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by age group^(b), as at 2011 Census^(c)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Number of total ex-serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(f)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(f)
Age group: 17-24 (years) ^(b)	13	17.8	3,595	9.5	1.9 (0.6 - 6.1)	1,192	13.2	1.4 (0.4 - 4.4)
Age group: 25-34 (years) ^(b)	26	35.6	12,539	33.0	1.1 (0.6 - 1.8)	1,687	18.7	1.9 (1.1 - 3.2)*

Age group: 35-44 (years) ^(b)	24	32.9	9,925	26.2	1.3 (0.7 - 2.2)	1,915	21.2	1.6 (0.9 - 2.8)
Age group: 45-80 (years) ^(b)	10	13.7	11,888	31.3	0.4 (0.1 - 2.1)	4,250	47.0	0.3 (0.1 - 1.4)
Total males	73	100.0	37,947	100.0	1	9,044	100.0	1
Mean age	34.2	..	39.2	..	..	43.9	..	..
Median age	34	..	37	..	..	43	..	..

CI - confidence interval

.. - not applicable

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Age at Census (9 August 2011). The age range was limited to 17-80 years for both ex-serving ADF males and Australian males.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. An asterisk (*) indicates a statistically significant difference. A statistically significant association has been based on unrounded lower and upper confidence intervals.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

What was their relationship status?

Maintaining ongoing social supports while undertaking military service is complex. While ADF personnel often build strong relationships within the military, the nature of service may require them to spend extensive periods away from support from home, family and friends, both within and outside of the ADF (Senate Foreign Affairs Defence and Trade References Committee 2016). Having a significant other such as a spouse or partner (i.e. having someone to share concerns with and to care for), is recognised as a protective factor (Open Arms 2019b).

Marital status

The 2011 Census collected information on a person's registered marital status and social marital status. Registered marital status records a person's current status in regard to a registered marriage, i.e. whether he/she is widowed, divorced, separated, married or has never married³. Social marital status records a person's relationship status based on their current living arrangements, in terms of whether she or he forms a couple relationship with another person living in the same usual residence and the nature of that relationship⁴.

For this report, marital status has been derived using the registered marital status and social marital status variables.

Never married: includes individuals with registered marital status indicating never married, but excludes those with a social marital status indicating being in a registered or de facto marriage with another member of the household.

Widowed/ Divorced/ Separated: includes individuals with registered marital status indicating widowed, divorced, or separated, but excludes individuals with a social marital status indicating being in a registered or de facto marriage with another member of the household.

Couple in a registered or de facto marriage: includes individuals who reported being in a registered marriage, or whose social marital status was recorded as being in a registered or de facto marriage with another member of the household regardless of how they responded to the question "What is the person's present (registered) marital status?"

Of the total ex-serving ADF male cohort, they were more likely to be in a registered or de facto marriage (69%) than to have never married (23%) or be widowed, divorced or separated (7.9%).

Compared with the total ex-serving ADF male population, ex-serving ADF males who died by suicide:

- were twice as likely to be never married (47%).
- were less likely (34%) to be in a registered or de facto marriage.

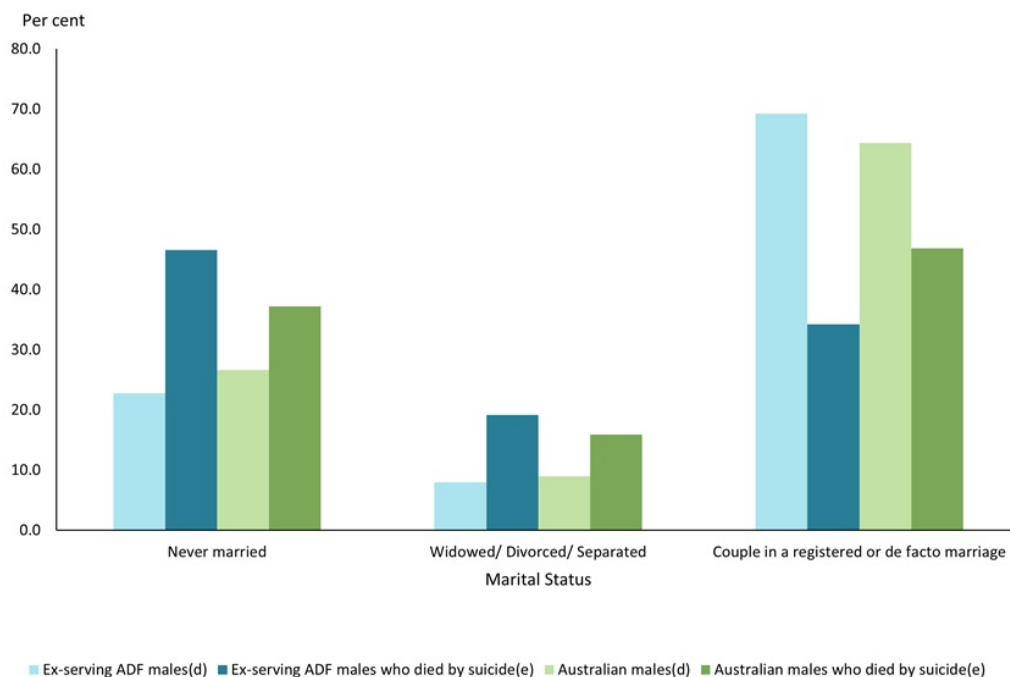
Compared with ex-serving ADF males who died by suicide:

- almost 4 in 10 (37%) Australian males who died by suicide were never married.
- just under half (47%) of Australian males who died by suicide were in a registered or de facto marriage.
- a similar proportion of Australian males who died by suicide were widowed, divorced or separated (19% compared with 16% respectively).

[3] Statements - Registered Marital Status

[4] Statements - Social Marital Status

Figure 2: Proportion of ex-serving ADF males and Australian males^(a) by marital status^(b), as at 2011 Census^(c)



Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

(a) Excludes individuals who were an overseas visitor.

(b) Marital status has been derived using the Registered Marital Status and Social Marital Status variables.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

Table 9: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by marital status^(b), as at 2011 Census^(c)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Number of total ex-serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(f)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(f)
Marital status^(b): Never married	34	46.6	8,654	22.8	2.0 (1.4 - 2.9)*	3,366	37.2	1.3 (0.9 - 1.8)
Marital status^(b): Widowed/ Divorced/ Separated	14	19.2	3,016	7.9	2.4 (0.8 - 7.1)	1,438	15.9	1.2 (0.4 - 3.6)
Marital status^(b): Couple in a registered or de facto marriage	25	34.2	26,277	69.2	0.5 (0.3 - 0.9)*	4,240	46.9	0.7 (0.4 - 1.3)
Total males	73	100.0	37,947	100.0	1	9,044	100.0	1

CI - confidence interval

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Marital status has been derived using the Registered Marital Status and Social Marital Status variables

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. An asterisk (*) indicates a statistically significant difference. A statistically significant association has been based on unrounded lower and upper confidence intervals.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

What was their highest level of educational attainment?

In the general population, completing school and higher education is associated with better overall health and welfare outcomes (AIHW 2021c). This effect is also observed within the ADF, where people with higher educational attainment have fewer reported medical conditions, better mental and physical health and better quality of life (Hawthorne et al., 2014). Higher levels of educational attainment are also an important factor in how well ex-serving ADF members are able to transition to civilian life (DVA 2011).

Highest level of educational attainment

The 2011 Census collected information about the highest level of education an individual has completed. Programs are delivered by education providers including schools, vocational education institutions and universities.

In the 2011 Census, highest level of educational attainment was created by combining Non-School Qualification, Level of Education and Highest Year of School Completed to produce a single measure of a person's overall level of educational attainment, whether it be a school or non-school qualification. In this section, the highest level of educational attainment categories have been grouped into broader categories as follows:

Bachelor Degree or Higher: includes Bachelor Degree Level, Graduate Diploma and Graduate Certificate not further defined, Graduate Diploma Level, Graduate Certificate Level, Post Graduate Degree Level (including not further defined), Doctoral Degree Level and Masters Degree Level.

Advanced Diploma/Diploma: includes Advanced Diploma and Diploma Level not further defined, Advanced Diploma and Associate Degree Level and Diploma Level.

Certificate III/IV: includes Certificates III and IV Level not further defined, Certificate III and Certificate IV.

Year 12 or equivalent or below: includes Secondary Education Year 12, Year 11, Year 10, Certificate Level and Certificates I and II Level not further defined, Certificate I, Certificate II and Secondary Education Year 9 and Year 8 or below.

Among ex-serving ADF males who had a school or non-school qualification, the most common highest level of educational attainment was Year 12 equivalent or below (30%). It was also the most common educational attainment of ex-serving ADF males who died by suicide (36%).

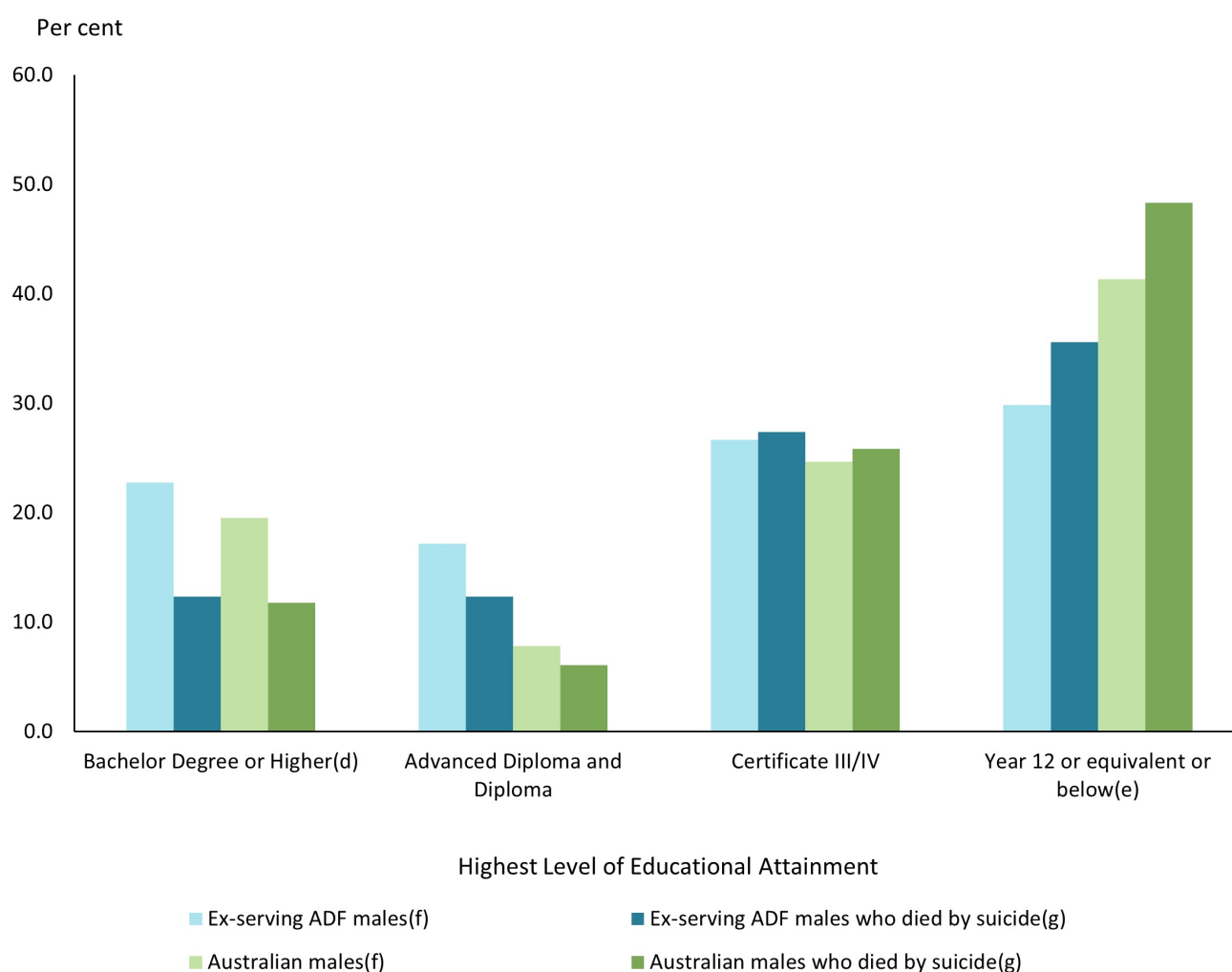
Of the total ex-serving ADF male cohort:

- 23% held a Bachelor degree or higher compared with 12% of ex-serving ADF males who died by suicide.
- 17% held an Advanced diploma and diploma compared with 12% of ex-serving ADF males who died by suicide.

Compared with ex-serving ADF males who died by suicide, Australian males who died by suicide:

- had a similar proportion who held a Bachelor degree or higher (12%).
- just under half (48%) held a Year 12 equivalent or below qualification, which was the most common highest level of education attainment among this cohort.

Figure 3: Proportions of ex-serving ADF males and Australian males^(a) by highest level of educational attainment^(b), as at 2011 Census^(c)



CI - confidence interval

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Highest level of educational attainment was created by combining Non-School Qualification, Level of Education and Highest Year of School Completed to produce a single measure of a person's overall level of educational attainment, whether it be a school or non-school qualification.

(c) At home on Census night.

(d) Includes Bachelor Degree Level, Graduate Diploma and Graduate Certificate Level and Postgraduate Degree Level.

(e) Includes Certificate Level not further defined and Certificate I/II Level.

(f) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(g) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

Table 10: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by highest level of educational attainment, as at 2011 Census^(c)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex-serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(e)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(e)
Highest level of educational attainment: Bachelor Degree or Higher ^(f)	9	12.3	8,628	22.7	0.5 (0.1 - 3.1)	1,064	11.8	1.1 (0.2 - 6.0)
Highest level of educational attainment: Advanced Diploma and Diploma	9	12.3	6,523	17.2	0.7 (0.1 - 4.1)	550	6.1	2.0 (0.3 - 11.9)
Highest level of educational attainment: Certificate III/IV	20	27.4	10,114	26.7	1.0 (0.5 - 2.1)	2,337	25.8	1.1 (0.5 - 2.2)
Highest level of educational attainment: Year 12 or equivalent or below ^(g)	26	35.6	11,317	29.8	1.2 (0.7 - 2.0)	4,372	48.3	0.7 (0.4 - 1.2)
Highest level of educational attainment: Total with a school or non-school qualification	64	87.7	36,582	96.4	0.9 (0.8 - 1.0)	8,323	92.0	1.0 (0.9 - 1.0)
No educational attainment/Level of education not stated/Inadequately described	9	12.3	1,365	3.6	3.4 (0.6 - 20.0)	721	8.0	1.6 (0.3 - 9.0)

Total males	73	100.0	37,947	100.0	1	9,044	100.0	1
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CI - confidence interval

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) At home on Census night.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. A statistically significant association has been based on unrounded lower and upper confidence intervals.

(f) Includes Bachelor Degree Level, Graduate Diploma and Graduate Certificate Level and Postgraduate Degree Level.

(g) Includes Certificate Level not further defined and Certificate I/II Level.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

How many were employed?

Employment provides direct economic benefit to individuals and families, including financial security, increased mobility and access to higher standards of living. It is also generally associated with benefits to physical and mental health and wellbeing, social connectedness, and improved developmental outcomes for the children of employed persons (Biddle 2013; WHO 2012).

While the ADF provides secure and stable employment, ex-serving ADF members managing symptoms of poor mental health may face difficulties transitioning to work as a civilian, as these symptoms may affect their ability to maintain employment (Harrod et al. 2017).

Labour force status

Labour force status is one indicator of the socioeconomic status of a person and is a key element in assessing the circumstances and needs of ex-serving ADF members and their families. Three categories of labour force status have been explored in this report (ABS 2011):

Employed: people who work for payment or profit, or as an unpaid helper in a family business in the week before Census night, have a job from which they are on leave or otherwise temporarily absent, or are on strike or stood down temporarily.

The hours a person works is an important aspect of their employment. For many people, working part-time enables them to balance work with other activities, such as a caring responsibility, study, or transition to retirement. As such, analysis of employed ex-serving ADF males has also been disaggregated by those who worked full-time, and those who worked part time.

Unemployed: people who reported they did not have a job but were actively looking for either full time or part time work and available to start work.

Not in the labour force: this includes people who, in the week before Census night, were neither employed nor unemployed. They include people who were keeping house (unpaid), retired, voluntarily inactive, permanently unable to work, in gaol, trainee teachers, members of contemplative religious orders, and people whose only activity in the week before Census night was jury service or unpaid voluntary work for a charitable organisation.

Overall, the total ex-serving ADF male cohort were observed to have higher proportions in employment than those who died by suicide, with 7 in 10 (69%) working full time compared with almost 5 in 10 (47%) ex-serving ADF males who died by suicide. In comparison, over 4 in 10 (43%) of Australian males who died by suicide were working full time.

Values below based on small numbers of deaths have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability.

Table 11: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by labour force status^(b), as at 2011 Census^(c)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Number of total ex-serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(f)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(f)
Labour force status: Employed - Worked full time ^(g)	34	46.6	26,176	69.0	0.7 (0.5 - 1.0)*	3,926	43.4	1.1 (0.8 - 1.5)
Labour force status: Employed - Worked part time ^(h)	12	16.4	3,795	10.0	1.6 (0.5 - 5.9)	996	11.0	1.5 (0.4 - 5.4)
Labour force status: Employed - Away from work ⁽ⁱ⁾	n.p.	n.p.	1,692	4.5	n.p.	362	4.0	n.p.
Labour force status: Employed - Total employed	n.p.	n.p.	31,663	83.4	n.p.	5,284	58.4	n.p.
Labour force status: Unemployed - Looking for full time work	n.p.	n.p.	1,128	3.0	n.p.	493	5.5	n.p.
Labour force status: Unemployed - Looking for part time work	n.p.	n.p.	256	0.7	n.p.	109	1.2	n.p.
Labour force status: Unemployed - Total unemployed	n.p.	n.p.	1,384	3.6	n.p.	602	6.7	n.p.
Labour force status: Unemployed - Not in the labour force	19	26.0	4,720	12.4	2.1 (1.0 - 4.5)	2,975	32.9	0.8 (0.4 - 1.7)
Total Males^(j)	73	100.0	37,947	100.0	1	9,044	100.0	1

CI - confidence interval

n.p. - not available for publication but included in totals where applicable

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Refers to labour force status during the week prior to Census night.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. An asterisk (*) indicates a statistically significant difference. A statistically significant association has been based on unrounded lower and upper confidence intervals.

(g) Full time work refers to those who worked 35 hours or more in all jobs during the week prior to Census night.

(h) Part time work refers to those who worked less than 35 hours in all jobs during the week prior to Census night.

(i) Away from work refers to those who were temporarily absent from a paid job but who retained a formal attachment to that job.

(j) Includes not stated.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

How much did they earn?

Financial wellbeing is connected to wellbeing across a number of areas of a person's life, such as ability to access education and health, therefore it is important to understand the income circumstances of ex-serving ADF males. Financial security is also an important protective factor against the risk of suicide (Open Arms 2019b).

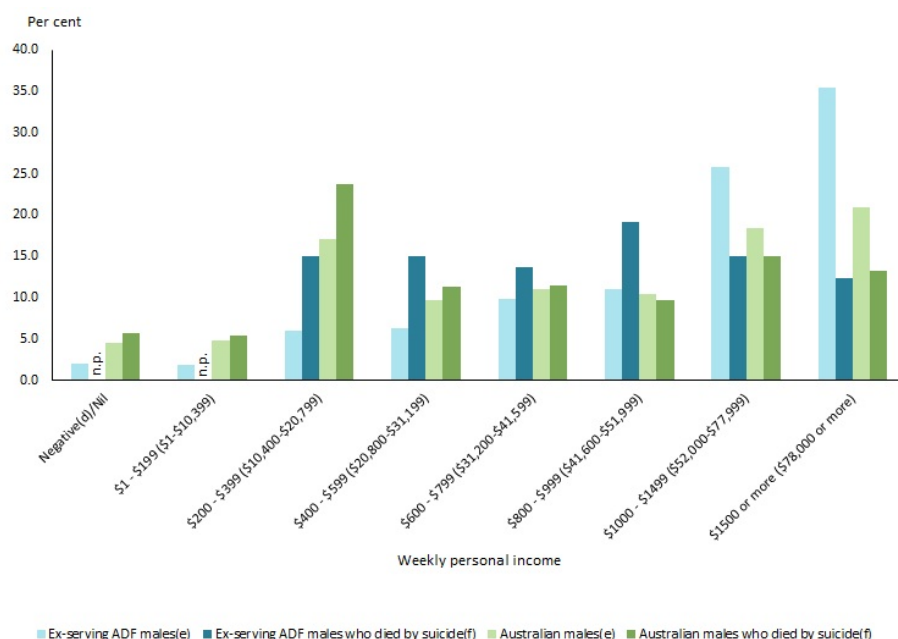
Weekly personal income is a self-reported income measure sourced from the 2011 Census. Each person was asked to indicate the range within which their total income from all sources placed, rather than their exact income (ABS 2011). Generally, the ex-serving ADF male cohort had a higher weekly personal income than the Australian male population.

Ex-serving ADF males overall had higher levels of income than those who died by suicide. For the total ex-serving ADF male cohort:

- 6 in 10 (61%) had a weekly personal income of \$1,000 or more compared with almost 3 in 10 (27%) ex-serving ADF males who died by suicide.
- 6.0% had a weekly personal income between \$200 and \$399 compared with 15% of ex-serving ADF males who died by suicide.

Compared with ex-serving ADF males who died by suicide, a similar proportion of Australian males who died by suicide had a weekly personal income of \$1,000 or more (28%).

Figure 4: Proportions of ex-serving ADF males and Australian males^(a) by weekly personal income^(b), as at 2011 Census^(c)



n.p. - not available for publication

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Income is reported as the total income an individual usually receives each week. Equivalent annual amounts appear in brackets.

(c) At home on Census night.

(d) 'Negative' income in the 2011 Census includes people who own their own business and report negative income due to losses or negative gearing of rentals.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data.

Table 12: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by weekly personal income^(b), as at 2011 Census^(c)

	Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Number of total ex-serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(f)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(f)
Weekly personal income: Negative ^(g) /Nil	n.p.	n.p.	767	2.0	n.p.	521	5.8	n.p.
Weekly personal income: \$1 - \$199 (\$1-\$10,399)	n.p.	n.p.	714	1.9	n.p.	491	5.4	n.p.
Weekly personal income: \$200 - \$399 (\$10,400-\$20,799)	11	15.1	2,291	6.0	2.5 (0.6 - 10.3)	2,142	23.7	0.6 (0.2 - 2.6)
Weekly personal income: \$400 - \$599 (\$20,800-\$31,199)	11	15.1	2,400	6.3	2.4 (0.6 - 9.8)	1,022	11.3	1.3 (0.3 - 5.5)
Weekly personal income: \$600 - \$799 (\$31,200-\$41,599)	10	13.7	3,765	9.9	1.4 (0.3 - 6.6)	1,038	11.5	1.2 (0.3 - 5.7)
Weekly personal income: \$800 - \$999 (\$41,600-\$51,999)	14	19.2	4,183	11.0	1.7 (0.6 - 5.1)	875	9.7	2.0 (0.7 - 5.9)
Weekly personal income: \$1,000 - \$1,499 (\$52,000-\$77,999)	11	15.1	9,788	25.8	0.6 (0.1 - 2.4)	1,361	15.0	1.0 (0.2 - 4.1)

Weekly personal income: \$1,500 or more (\$78,000 or more)	9	12.3	13,448	35.4	0.4 (0.1 - 2.0)	1,204	13.3	0.9 (0.2 - 5.3)
Total males^(h)	73	100.0	37,947	100.0	1	9,044	100.0	1

CI - confidence interval

n.p. - not available for publication but included in totals where applicable

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Income is reported as the total income an individual usually receives each week. Equivalent annual amounts appear in brackets.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. A statistically significant association has been based on unrounded lower and upper confidence intervals.

(g) 'Negative' income in the 2011 Census includes people who own their own business and report negative income due to losses or negative gearing of rentals.

(h) Includes not stated.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

What are their housing circumstances?

Housing plays a major role in people's health and wellbeing by providing shelter, safety and security. Poor housing has been linked to adverse physical and mental health outcomes as well as negative effects on employment, education and social relationships (AIHW 2018a). A person's housing needs and preferences change as they progress through different stages of their lives, due to factors such as employment, family structures, health and mental wellbeing and financial situations (ABS 2016). While serving ADF members have access to subsidised housing and rental assistance, once members transition out of the ADF, they are no longer able to access this support (Defence 2017).

Some dwelling types are indicative of the degree of housing security a person experiences. For example, owning your own home, especially without a mortgage, is usually more secure than renting in the private rental market (AIHW 2021d).

Due to small counts of ex-serving ADF members who died by suicide in multiple dwelling types, only analyses for those owning a private dwelling (with and without mortgage) and rented dwellings have been presented.

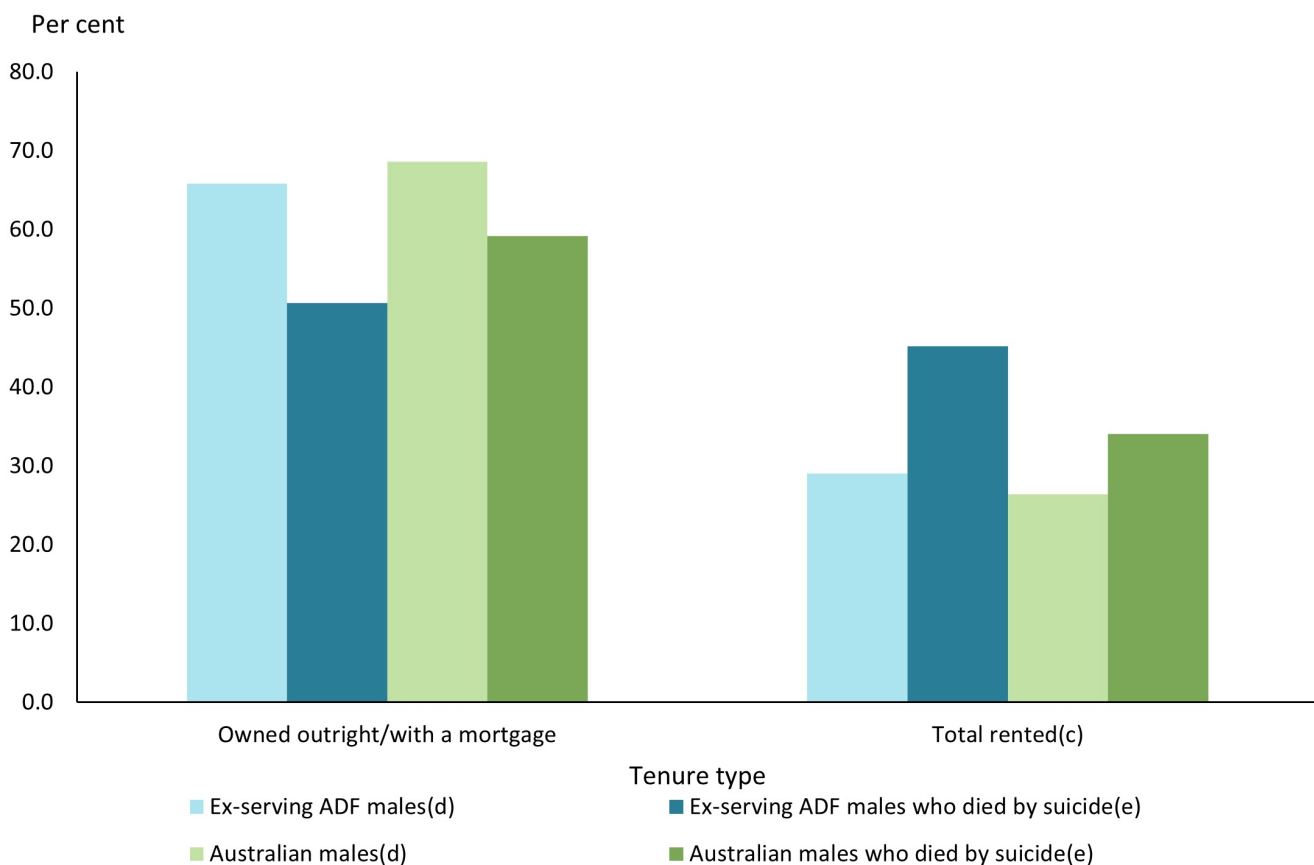
The most common housing circumstance for both ex-serving ADF males and all Australian males was living in a private dwelling owned outright/with a mortgage.

Two thirds (66%) of ex-serving ADF males were living in a private dwelling owned by a member of the household either outright or with a mortgage, compared with 51% of ex-serving ADF males who died by suicide.

Ex-serving ADF males who died by suicide were 1.6 times as likely to be living in a rented dwelling, compared with the total ex-serving ADF male cohort (45% compared with 29% respectively).

Similarly, Australian males who died by suicide were more likely to be living in a private dwelling owned by a member of the household either outright or with a mortgage (59%) and less likely to be living in a rented dwelling (34%).

Figure 5: Proportions of ex-serving ADF males and Australian males^(a) by tenure type, as at 2011 Census^(b)



Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) At home on Census night.

(c) Includes renting via real estate agent, state or territory housing authority, person not in same household, housing co-operative, community or church group, other landlord type and landlord type not stated.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

Table 13: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by tenure type, as at 2011 Census^(c)

Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Number of total ex-serving ADF males ^(d)	Proportion of total ex-serving ADF males ^(d)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(e)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(c)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(e)
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Tenure and landlord type^(b):								
Owned outright/with a mortgage	37	50.7	24,995	65.9	0.8 (0.6 - 1.1)	5,354	59.2	0.9 (0.6 - 1.2)
Tenure and landlord type^(b):								
Total rented^(f)	33	45.2	11,021	29.0	1.6 (1.1 - 2.3)*	3,084	34.1	1.3 (0.9 - 1.9)
Total males^(g)	73	100.0	37,947	100.0	1	9,044	100.0	1

CI - confidence interval

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) At home on Census night.

(c) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. An asterisk (*) indicates a statistically significant difference. A statistically significant association has been based on unrounded lower and upper confidence intervals.

(f) Includes renting via real estate agent, state or territory housing authority, person not in same household, housing co-operative, community or church group, other landlord type and landlord type not stated.

(g) Includes private dwellings with other tenure type or tenure type not stated, and non-private dwellings. As a result, sum of component items do not equal totals.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

What were their living arrangements?

Social support from other people and services can be vital in times of need and can contribute to connectedness through interactions between people. In particular, 'family connection provides a protective factor against suicide, as disruptions to family relationships are associated with increased risk for suicide' (Parliament of Australia 2022).

Social support comes in many forms, but broadly covers 'support accessible to an individual through social ties to other individuals, groups, and the larger community' (Lin et al. 1979). Having a positive and reliable social support system can enhance resilience to stress, help protect against developing trauma-related psychopathology, decrease the functional consequences of trauma-induced disorders, and reduce medical morbidity and mortality (Ozbay et al. 2007). The composition of people living in the household may contribute to a person's feelings of safety, and social and community connectedness (AIHW 2018a).

The nature of ADF service can make it difficult to develop and maintain social connections outside the military due to extended periods of time away from home for deployment/training. Understanding the household composition of ex-serving ADF males may provide insight into social support offered by family and friends (AIHW 2018a).

Types of households

Household composition describes the type of household within a dwelling. It indicates whether a family or other unrelated household members are present. For this report, household compositions are divided broadly into:

Family households: A private dwelling with 2 or more people, who are related by blood, marriage (registered or de facto), adoption, step or fostering, and who are usually resident in the same household. Other related individuals (brothers, sisters, aunts, uncles) may also be present in the household. Family households are further broken down by:

Couple family with children household: A private dwelling consisting of a family with children. The child may be either dependent (children aged under 15 or dependent students) or non-dependent adult children.

Couple family without children household: A private dwelling consisting of a family without children. This household type can include those couples whose children have left home and are not present in the household on Census night, not just those couples who have not had children.

One parent family with children household: A private dwelling consisting of a lone parent who has no spouse or partner usually resident in the household, and who forms a parent-child relationship with at least one child usually resident in the household. The child may be either dependent (children aged under 15 or dependent students) or non-dependent adult children.

Group households: A private dwelling consisting of two or more unrelated persons. There are no reported couple relationships, parent-child relationships or other blood relationships in these households.

Lone person households: A private dwelling occupied by only one person.

These household types are representative of the household as at the 2011 Census Night and may not be reflective of family structures. For example, a **couple family without children household** can include couples whose children have left home, not just those who have not had children.

Compared with the total ex-serving ADF male cohort, ex-serving ADF males who died by suicide were less likely to live in a couple family.

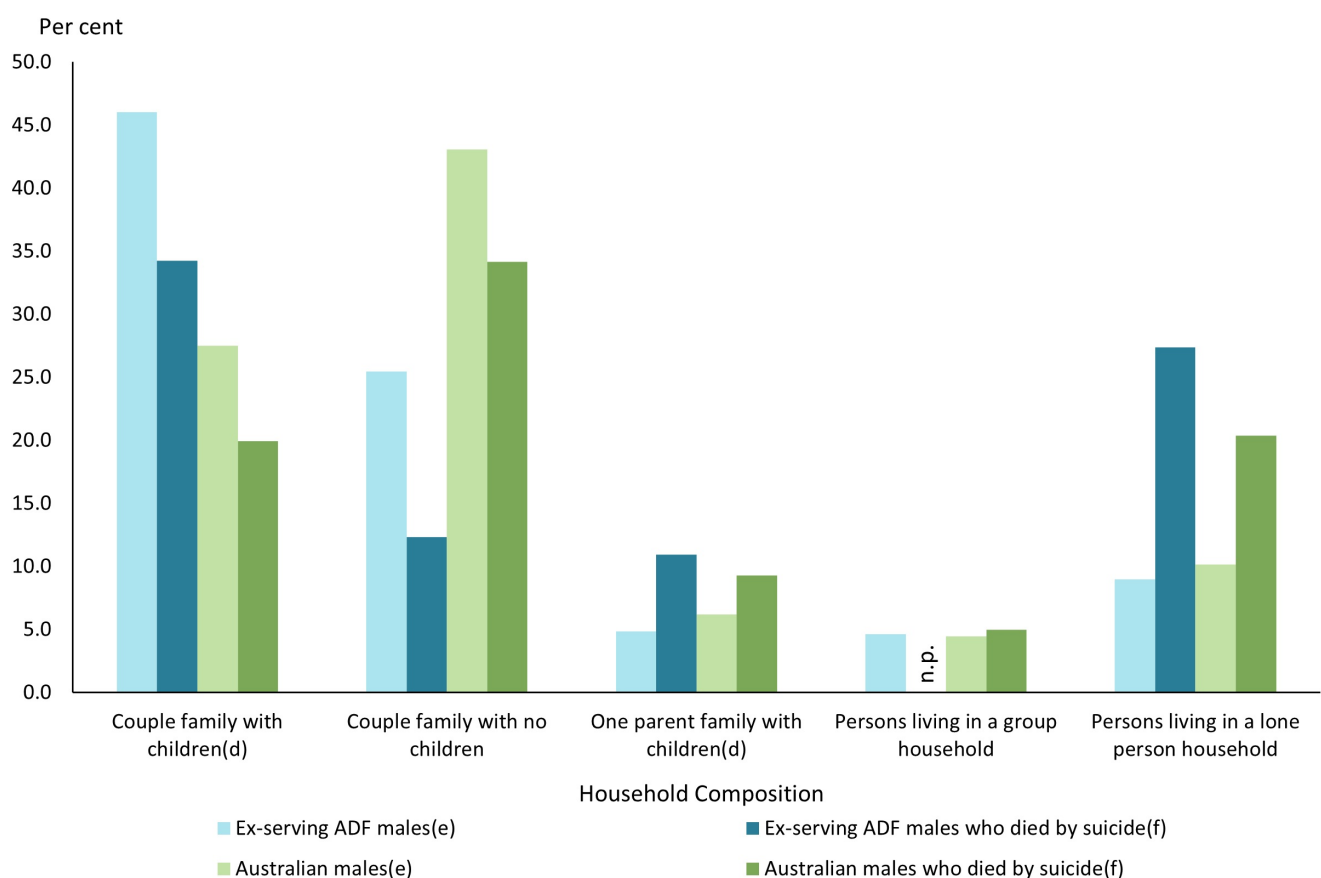
Of ex-serving ADF males who died by suicide:

- 34% lived in couple families with children compared with 46% ex-serving ADF males.
- 12% lived in couple families with no children compared with 26% ex-serving ADF males.
- Ex-serving ADF males who died by suicide were 3.1 times as likely to live in a lone person household than ex-serving ADF males (27% compared with 9.0% respectively).

In comparison to ex-serving ADF males who died by suicide, a similar proportion of Australian males who died by suicide lived in a couple family with or without children (47% compared with 54% respectively).

- One in 5 (20%) Australian males who died by suicide lived in a couple family with children.
- One in 3 (34%) Australian males who died by suicide lived in a couple family with no children.
- One in 5 (20%) Australian males who died by suicide were living in a lone person household.

Figure 6: Proportions of ex-serving ADF males and Australian males^(a) by household composition^(b), as at 2011 Census^(c)



n.p. - not available for publication

Statistics based on small numbers of deaths by suicide should be interpreted with caution and comparisons with other populations should be reported with context.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) Household composition has been derived using the Family Composition and Relationship in Household variables.

(c) At home on Census night.

(d) Includes children under 15, dependent students and non-dependent adult children.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

Table 14: Ex-serving ADF males, ex-serving ADF males who died by suicide and Australian males who died by suicide^(a), by household composition^(b), as at 2011 Census^(c)

	Number of ex- serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of ex- serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Number of total ex- serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)	Ex-serving ADF males who died by suicide vs. Ex- serving ADF males proportion ratio (95% CI) ^(f)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(f)
Household composition ^(l) : Family household - Couple family with children ^(g)	25	34.2	17,474	46.0	0.7 (0.4 - 1.3)	1,804	19.9	1.7 (1.0 - 3.0)
Household composition ^(l) : Family household - Couple family with no children	9	12.3	9,670	25.5	0.5 (0.1 - 2.8)	3,088	34.1	0.4 (0.1 - 2.1)
Household composition ^(l) : Family household - Total couple family	34	46.6	27,144	71.5	0.7 (0.5 - 0.9)*	4,892	54.1	0.9 (0.6 - 1.2)
Household composition ^(l) : Family household - One parent family with children ^(g)	8	11.0	1,845	4.9	2.3 (0.3 - 16.4)	840	9.3	1.2 (0.2 - 8.6)
Household composition ^(l) : Family household - Total persons living in a family household ^(h)	n.p.	n.p.	29,393	77.5	n.p.	5,882	65.0	n.p.

Household composition ⁽ⁱ⁾ : Persons living in a group household	n.p.	n.p.	1,762	4.6	n.p.	451	5.0	n.p.
Household composition ⁽ⁱ⁾ : Persons living in a lone person household	20	27.4	3,403	9.0	3.1 (1.5 - 6.3)*	1,842	20.4	1.4 (0.7 - 2.8)
Total males ⁽ⁱ⁾	73	100.0	37,947	100.0	1	9,044	100.0	1

CI - confidence interval

n.p. - not available for publication but included in totals where applicable

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) This is a combination of the 2011 Census 'Family Composition' and 'Relationship in Household' variables.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. An asterisk (*) indicates a statistically significant difference. A statistically significant association has been based on unrounded lower and upper confidence intervals.

(g) Includes children under 15, dependent students and non-dependent adult children.

(h) Includes individuals who were living in other families.

(i) Includes other families, unrelated individuals, individuals with a non-classifiable relationship in household and not applicable.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

How many people did they normally live with?

While family is considered one of the main pillars of social support, non-family members who live in a dwelling can also play a role in developing a person's immediate social network. This analysis uses the number of residents usually present in dwelling as a proxy for social connectedness.

Number of people usually living in a dwelling

This is a count of the number of people usually living in an occupied private dwelling, and includes up to three residents who were temporarily absent from the household on Census night (9 August 2011). Note that the count includes the individual themselves.

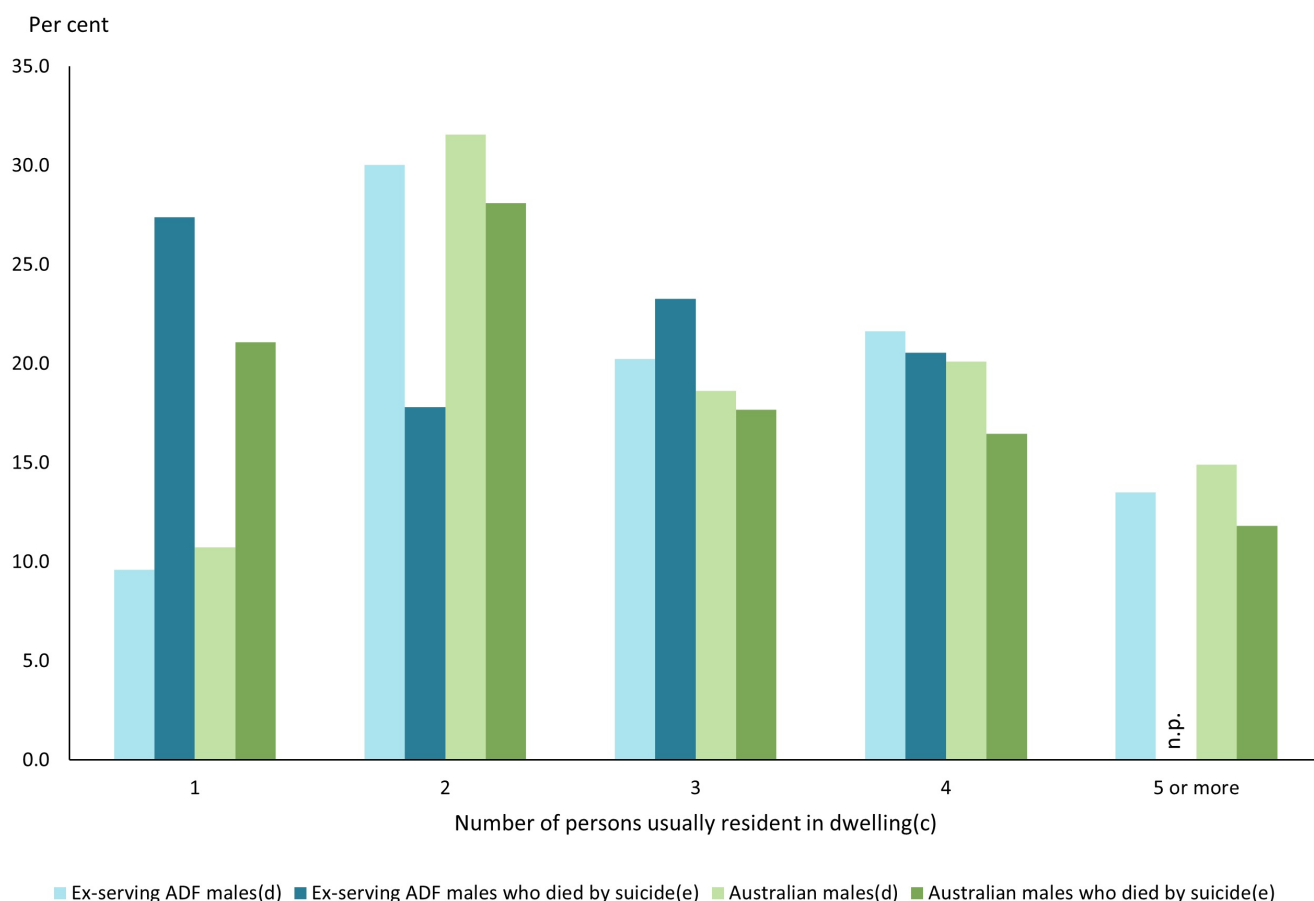
For the purposes of this report, persons in households with 5 or more people were grouped together.

The most common number of people usually living in a dwelling was 2-persons for the total ex-serving ADF male cohort (30%), Australian males (32%) and Australian males who died by suicide (28%).

However, for ex-serving ADF males who died by suicide, the most common was a 1-person dwelling (27%). Ex-serving ADF males who died by suicide were nearly 3 times as likely to be the only person living in their dwelling compared with total ex-serving ADF males (9.6%).

Compared with ex-serving ADF males who died by suicide, 2 in 10 (21%) Australian males who died by suicide were living on their own.

Figure 7: Proportions of ex-serving ADF males and Australian males^(a) by number of persons usually resident in dwelling, as at 2011 Census^(b)



n.p. - not available for publication

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) At home on Census night.

(c) The number of people usually resident in an occupied private dwelling and includes up to three residents who were temporarily absent from the household on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

Table 15: Ex-serving ADF males, ex-serving ADF males who died by suicide^(a), by number of people usually living in a dwelling^(b), as at 2011 Census^(c)

Number of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of ex-serving ADF males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Number of total ex-serving ADF males ^(e)	Proportion of total ex-serving ADF males ^(e)	Ex-serving ADF males who died by suicide vs. Ex-serving ADF males proportion ratio (95% CI) ^(f)	Number of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Proportion of Australian males who died by suicide, 9 Aug 2011 - 31 Dec 2018 ^(d)	Ex-serving males who died by suicide vs. Australian males who died by suicide proportion ratio (95% CI) ^(f)
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Number of persons usually resident in dwelling: 1	20	27.4	3,642	9.6	2.9 (1.4 - 5.9)*	1,907	21.1	1.3 (0.6 - 2.7)
Number of persons usually resident in dwelling: 2	13	17.8	11,395	30.0	0.6 (0.2 - 1.9)	2,542	28.1	0.6 (0.2 - 2.0)
Number of persons usually resident in dwelling: 3	17	23.3	7,676	20.2	1.2 (0.5 - 2.7)	1,599	17.7	1.3 (0.6 - 3.1)
Number of persons usually resident in dwelling: 4	15	20.5	8,213	21.6	0.9 (0.4 - 2.6)	1,490	16.5	1.3 (0.5 - 3.4)
Number of persons usually resident in dwelling: 5 or more	n.p.	n.p.	5125	13.5	n.p.	1069	11.8	n.p.
Total males^(g)	73	100.0	37,947	100.0	1	9,044	100.0	1

CI - confidence interval

n.p. - not available for publication but included in totals where applicable

Comparisons between ex-serving ADF males and Australian males should be undertaken with caution owing to the different underlying age structures of these populations.

Notes:

(a) Excludes individuals who were an overseas visitor.

(b) This is a count of the number of persons usually resident in an occupied private dwelling, and includes up to three residents who were temporarily absent from the household on 9 August 2011.

(c) At home on Census night.

(d) Includes individuals who were alive at the time of 2011 Census and had a Census record and died by suicide between 9 August 2011 and 31 December 2018 inclusive.

(e) Includes individuals who were alive at the time of 2011 Census and had a Census record, who were still alive or had died (including by suicide) during the study period between 9 August 2011 and 31 December 2018 inclusive.

(f) Ninety-five per cent (95%) confidence intervals are presented to indicate the statistical precision and significance. The result is interpreted as having a statistically significant association if the confidence interval does not cross the value of 1. An asterisk (*) indicates a statistically significant difference. A statistically significant association has been based on unrounded lower and upper confidence intervals.

(g) Includes not applicable.

Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data

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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 of death by suicide for 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](tel:131114), or Defence All-hours Support Line on [1800 628 036](tel:1800628036), 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.

[Cancel](#)

Risk of death by suicide

On this page:

[Comparisons within the ex-serving ADF male population](#)

[Comparisons between the ex-serving ADF male population and the Australian male population](#)

This section explores the risk of death by suicide among ex-serving ADF males and Australian males. It looks at selected demographic and socioeconomic characteristics that may be associated with increased risk of death by suicide.

Data considerations

In order to understand whether or not ex-serving ADF males have different characteristics and experiences as well as risk and protective factors for suicide, it is important to compare them with other Australian males. However, this presents a number of statistical challenges and it is very important to understand what the limitations are and what should be considered when interpreting the data.

Risk ratios are presented in this section which is a measure that gives an indication of the strength of an association between the cohorts being compared. A risk ratio indicates how many times higher the probability of an event (specifically, risk of death by suicide) is in the group of interest compared with a reference group. Differences in the age structure between the populations is likely to be one of the contributing factors to the differences in the risk ratios that have been observed and caution must be taken in concluding that differences are due to ADF service-related characteristics.

Furthermore, this approach does not take into account the relationships between different characteristics and how these may interact to affect suicide rates. The results presented below have not been adjusted for age as the data could not meet requirements to do so. Readers should take this into consideration when interpreting the results presented.

It is difficult to infer patterns or trends in some of the selected demographics and socioeconomic characteristics because small numbers mean that some results are not able to be published. Values based on small numbers of deaths have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability or high volatility. Volatility is related to the size of the study cohort and the number of deaths observed. This means that when comparing small cohorts with other groups, we have less confidence that small observed differences reflect differences in underlying cohort risks.

Comparisons within the ex-serving ADF male population

Age

Younger ex-serving ADF males had higher risks of death by suicide than those who were older.

Ex-serving ADF males:

- aged 17-24 years had 4.3 times the risk of death by suicide as those aged 45-80.
- aged 25-34 and 35-44 years were 2.5 times and 2.9 times respectively as likely to die by suicide as those aged 45-80 years.

It is important to note that although the youngest age group (17-24 years) is associated with the highest level of risk among ex-serving ADF males, it is also known to be associated with other socioeconomic characteristics. Therefore, age may not be the sole contributing factor in the risk of death by suicide.

Relationship status

Compared with ex-serving ADF males who were in a registered or de facto marriage, ex-serving ADF males who were widowed, divorced or separated had 4.9 times the risk of death by suicide.

Ex-serving ADF males who were never married had 4.1 times the risk of death by suicide as ex-serving ADF males in a registered or de facto marriage.

Education

Ex-serving ADF males with lower levels of educational attainment had higher risks of death by suicide. Those with a Year 12 equivalent or below qualification had 2.2 times the risk of death by suicide as those with a Bachelor degree or higher.

Employment

Compared with ex-serving ADF males who were working full-time, ex-serving ADF males who were not in the labour force had 3.1 times the risk of death by suicide. Those who were working part-time had 2.4 times the risk of death by suicide.

Values for ex-serving ADF males who were unemployed and away from work were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Income

The risk of death by suicide among ex-serving ADF males tended to be higher for those who had lower weekly personal income. Those who earned \$200-\$399 a week had 7.0 times the risk of death by suicide as those who earned \$1,500 or more a week.

Values for ex-serving ADF males who had a weekly personal income as negative/nil or between \$1-\$199 were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Household circumstances

Ex-serving ADF males who lived in a rented dwelling had 2.0 times the risk of death by suicide as those who lived in a private dwelling owned by a member of the household either outright or with a mortgage.

Household composition

Compared with ex-serving ADF males in couple families with no children, ex-serving ADF males who were living in:

- one parent family with children households had 4.7 times the risk of death by suicide.
- lone person households had 6.3 times the risk of death by suicide.

Values for ex-serving ADF males who lived in a group household were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Number of residents usually living in a dwelling

Ex-serving ADF males who usually were the only person living in their dwelling had 4.8 times the risk of death by suicide as those who usually had 2 people (themselves included) living in their dwelling.

Values for ex-serving ADF males who lived in a dwelling with 5 or more people were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Summary

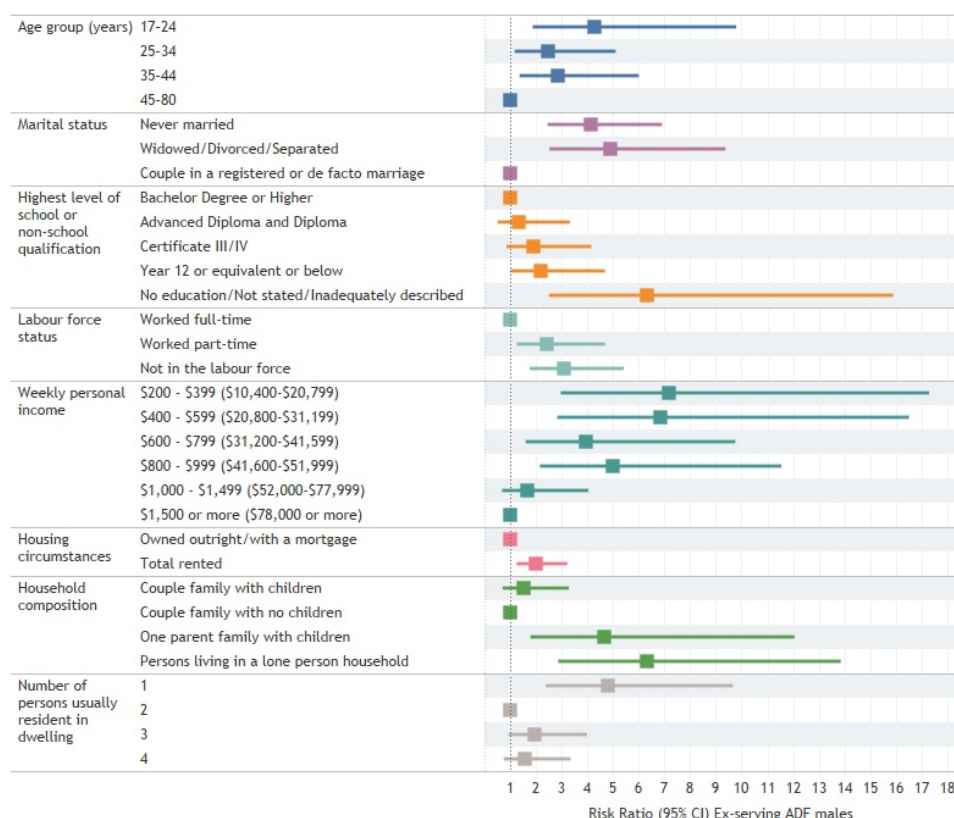
Overall, within the ex-serving ADF male population, socioeconomic characteristics that were more closely associated with increased social isolation also tended to have relatively high risks of death by suicide. These include:

- being never married, divorced, widowed or separated.
- being in a one parent family or living in a lone person household.
- being the only one usually living in their dwelling.

However, as each of these characteristics were analysed without controlling for other demographics (for example, age) or socioeconomic characteristics, they cannot be considered as sole predictors or direct causes of death by suicide.

The interactive data visualisation shows that within the ex-serving ADF male population, socioeconomic characteristics that had a higher risk of death by suicide included; being never married, divorced, widowed or separated, having no education, being in a one parent family or living in a lone person household or being the only one usually living in their dwelling.

Figure 8: Risk ratios of dying by suicide within ex-serving ADF males as at 2011 Census



Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data
<http://www.aihw.gov.au/>

Notes

How to interpret this figure

Comparisons between the ex-serving ADF male population and the Australian male population

Age

Ex-serving ADF males aged 17-24 years had 2.6 times the risk of death by suicide as Australian males in the same age range. This risk ratio was lower for the older age group (45-80 years).

However, unlike the ex-serving ADF male population where younger age groups generally had higher risks of death by suicide, analysis of age compared with Australian population found no distinct pattern or trend among the different age groups.

Relationship status

Ex-serving ADF males who were never married or were divorced, widowed, or separated had around twice the risk of death by suicide as Australian males who were never married or were divorced, widowed or separated. Risk levels were similar among ex-serving ADF males and Australian males who were in a registered or de facto marriage.

Education

Generally, the risk of death by suicide between ex-serving ADF males and Australian males was similar across all level of highest educational attainment. While those in the no education/not stated/inadequately described group are shown to have the highest risk of suicide, the confidence intervals are wide meaning we have less confidence in the observed difference.

Employment

Ex-serving ADF males who were working part time had 2.4 times the risk of death by suicide as Australian males who were working part time, while ex-serving ADF males who were not in the labour force had twice the risk of death by suicide as Australian males who were not in the labour force.

Values for ex-serving ADF males who were unemployed and away from work were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Income

Ex-serving ADF males who were earning \$400-\$599 a week had 2.7 times the risk of death by suicide than Australian males whose income was in the same range. Ex-serving ADF males who were earning \$1,000 or more a week had a similar risk of death by suicide as Australian males who earned \$1,000 or more a week.

Values for ex-serving ADF males who had a weekly personal income as negative/nil or between \$1-\$199 were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Household Circumstances

Ex-serving ADF males who were living in a rented dwelling had 1.6 times the risk of death by suicide as Australian males who lived in a rented dwelling.

Household Composition

Ex-serving ADF males who were living in lone person households, had twice the risk of death by suicide as Australian males living in a lone person household.

Values for ex-serving ADF males who lived in a group household were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Number of residents usually living in a dwelling

Ex-serving ADF males who were usually the only person living in their dwelling had 1.9 times the risk of death by suicide as Australian males who were usually the only person living in their dwelling.

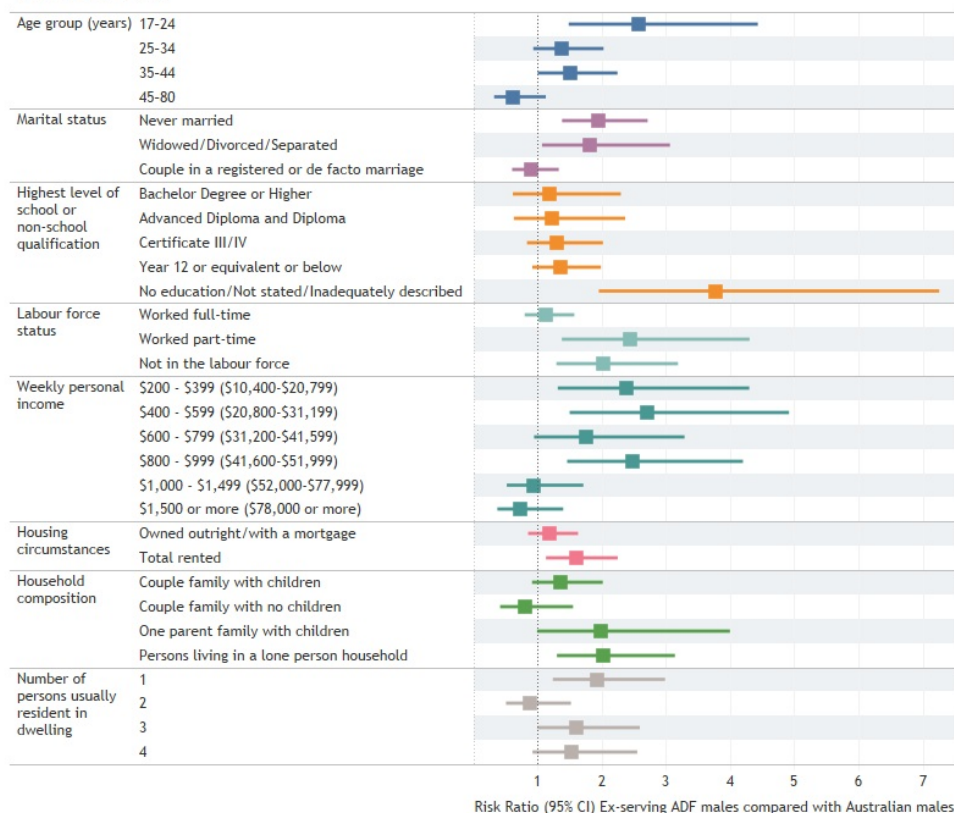
Values for ex-serving ADF males who lived in a dwelling with 5 or more people were based on small numbers of deaths and therefore have been excluded from the risk of death by suicide analysis.

Summary

Generally, patterns for risk of death by suicide for each of the characteristics examined when comparing ex-serving ADF males with Australian males, were similar to that when comparing within the ex-serving ADF male cohort.

The interactive data visualisation shows the risk of death by suicide in the ex-serving ADF male population compared with Australian males by selected demographic and socioeconomic characteristics. Overall, the size of the suicide risk for each of the risk factors is two to three times as high in the ex-serving ADF male population as in the general Australian male population.

Figure 9: Risk ratios of dying by suicide between ex-serving ADF males and Australian males, as at 2011 Census



Sources: AIHW analysis of linked PMKeyS - NDI - DSD 2001-2018 data and ABS MADIP - 2011 Census data (9 August 2011) - Cause of death/Deaths registrations data
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Notes

How to interpret this figure

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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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Future analysis directions

Future considerations

The Multi-Agency Data Integration Project (MADIP) data asset contains many other datasets that are available for analysis. Future analysis will explore:

- Personal Income Tax (PIT) data from the Australian Tax Office (ATO)
- Data Over Multiple Individual Occurrences (DOMINO) from the Department of Social Services (DSS)

This will complement the income analysis conducted in this report, and will help to understand the income situation of ADF members, particularly those in need of financial assistance.

Further breakdowns of data sourced from DVA and Defence, such as whether a veteran is a DVA client or information on their ADF service deployment experience could also provide valuable insights.

In collaboration with Defence, analysis of ex-serving ADF members linked to MADIP is anticipated to expand to a broader ex-serving ADF population, to include those who served since 1 January 1985. This expansion in the study population will help to address some of the limitations noted in this report such as the small number of suicides which limits the presentation of statistical findings (for example, ex-serving ADF females could potentially be explored). It is hoped that the expanded cohort may also allow further multi-variate factor analysis techniques to be used, beyond the limited univariate factor analysis in this report, i.e. to better identify the factors most strongly associated with suicide death in the ex-serving ADF population over time when all other available factors are accounted for.

A further opportunity would be to analyse suicide ideality and/or intentional self-harm as this report only includes deaths by suicide.

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Technical notes

Data sources

Department of Defence

Information on ex-serving ADF members was obtained from the Personnel Management Key Solution (PMKeyS). PMKeyS is a Department of Defence staff and payroll management system that contains information on all people with ADF service on or after 1 January 2001 (when the system was introduced).

Multi-Agency Data Integration Project (MADIP)

MADIP is a partnership among Australian Government agencies to develop a secure and enduring approach for combining information on healthcare, education, government payments, personal income tax, and demographics (including the Census) to create a comprehensive picture of Australia over time (ABS 2022). More information about the MADIP can be found at [Multi-Agency Data Integration Project \(MADIP\)](#) | Australian Bureau of Statistics (abs.gov.au).

The key MADIP datasets used in the analysis for this report (with potential to utilise more in the future) are:

- MADIP Person Linkage Spine (Australian Bureau of Statistics)
- 2011 Census of Population and Housing (Australian Bureau of Statistics)
- Causes of Death / Deaths Registrations (Australian Bureau of Statistics)

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 (AIHW, 2018b).

In this study, the NDI is linked with Defence payroll data to create the linked PMKeyS-NDI data set used in analysis of suicide in the ADF population.

Defence Suicide Database (DSD)

The DSD is maintained by Defence and contains information on suspected and confirmed deaths due to suicide of personnel serving full time since 1 January 2000. Suspected and confirmed suicides are included in the database only on the advice of the ADF Investigative Service. Cases are confirmed by receipt of a coronial finding of suicide. This database is linked to the PMKeyS and NDI and records with a status of 'confirmed' are used to supplement cause of death information from the NDI for numbers of suicides only.

ABS Causes of Death / Deaths Registrations

Causes of death are coded by the ABS to the International Statistical Classification of Diseases and Related Health Problems (ICD). Cause of death for a small number of records 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. Further information can be found in the [Causes of Death, Australia methodology](#) (ABS 2021).

Although this method likely captures the vast majority of suicides, there is potential for some to be missed if coronial findings are finalised or updated more than 4 years after a death.

The ABS Causes of Death data was used to identify ex-serving ADF males and Australian males who died by suicide. This data was then supplemented with the Deaths Registrations data which was used to identify the date of death. This allowed us to identify ex-serving ADF males and Australian males who died by suicide between 9 August 2011 and 31 December 2018. The deaths data in the linked PMKeyS-NDI data set was used to confirm the ex-serving ADF male deaths.

Linkage approach

Data linkage, also known as data integration, is a process that brings together information relating to an individual from more than one source. This report utilised probabilistic linkage between the following data sets: linked PMKeyS-NDI, the 2011 Census of Population and Housing, and ABS Causes of Death / Deaths Registrations data.

After undergoing data checking and cleaning, the PMKeyS-NDI data set was linked using a probabilistic data linkage to the AIHW/ABS interoperable spine. This spine allows data held by both organisations to be linked without the need for sharing any identifiable information. The data was linked to the spine by matching by name, sex and date of birth. The linkage procedure involved creating record pairs—one from each data set—by running a series of passes that allow for variation in full name information demographic data. There were over 129,000 links found in the PMKeyS-NDI-interoperable spine linkage. This linkage was carried out by the Data Linkage Unit at the AIHW.

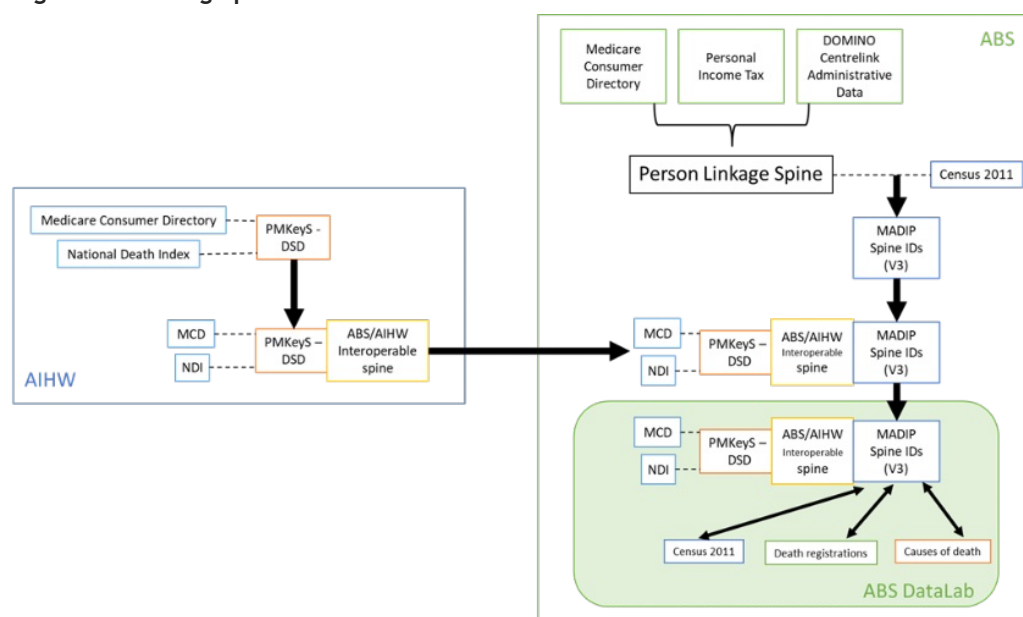
This data set was then transferred to the ABS to be linked to the MADIP spine. AIHW staff, using the ABS DataLab environment were subsequently able to link the PMKeyS-NDI data to 2011 Census records and ABS Causes of Death data using the linkages of these data sets to the MADIP spine.

After removing the records of those ADF members who were out of scope, this resulted in an in-scope population of 45,700 links who were aged between 17 and 80 at Census, older than 16 at hire date, alive, and ex-serving at the time of the 2011 Census, who had served at least one day of service between 1 January 2001 and 30 June 2011. The ABS Cause of Death and Deaths Registrations data was then used in MADIP to identify ex-serving ADF males and Australian males who died by suicide between 9 August 2011 and 31 December 2018. The deaths data in the linked PMKeyS-NDI data set was used to confirm the ex-serving ADF male deaths.

Strict separation of identifiable information and content data is maintained within the Data Linkage Units at both AIHW and the ABS, so that no one person will ever have access to both. Summary results from the linked data set are presented in aggregate format. Personal identifying information is not released, and no individual can be identified in any reporting.

Figure 10 illustrates the linkage process undertaken for this report.

Figure 10: Linkage process



Note: ABS - Australian Bureau of Statistics, AIHW - Australian Institute of Health and Welfare, DOMINO - Data Over Multiple Individual Occurrences, ID - Identification, MCD - Medicare Consumer Directory, NDI - National Death Index, PMKeyS - Personnel Management Key Solution

How were our populations scoped?

Age

The age was restricted to 17-80 years for both the ex-serving ADF males and Australian males to match the eligible ADF population. Furthermore, the minimum age at hire for ex-serving ADF males was capped at 16 years and above to remove any linkage errors.

Separation date

The ex-serving ADF population has been restricted to those who separated prior to 30 June 2011 to ensure the study population had separated from the ADF at the time of the 2011 Census. Separation year was used to calculate length of service and time since separation. The reference date for these service-related characteristics is 30 June 2011.

Australian population

Using the 2011 Census persons extract in MADIP, there were 21.7 million people accounted for who were at home on Census night (9 August 2011). In total, the linked 2011 Census population was 16.7 million (75% of the total Australian population at September 2011). Of the total linked 2011 Census population, 6.2 million were males aged between 17 and 80 and used to construct the Australian male comparator cohort for this study, of which around 9,000 died by suicide between 9 August 2011 and 31 December 2018.

Limitations of the population

The study population is limited to ADF members who were ex-serving and alive at the time of the 2011 Census (9 August 2011), and served at least one day since 1 January 2001 and separated on or prior to 30 June 2011.

The ex-serving ADF male study population does not include members who separated between 1 July 2011 and 9 August 2011, and those who separated before 1 January 2001.

Small numbers

Findings 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. As suicide amongst the ex-serving ADF population is a relatively uncommon occurrence (i.e. a statistically rare event), analysis is limited by small numbers.

For example, analysis of ex-serving ADF females was not possible. For ex-serving ADF males, after disaggregating by selected demographic and socioeconomic characteristics reported in the 2011 Census, small number of observed suicides in the study population have also been encountered. This has meant limiting the analysis further, for example, disaggregating by age or service-related characteristics or confidentialising small cell counts. This has also limited the utility of proportion ratios and risk ratios in some areas. Such treatments have been footnoted in the data tables accordingly.

Linkage

The linkage processes only provide data for those ex-serving ADF members who had a 2011 Census record. An individual not having a 2011 Census record could be a result of:

- them being overseas at the time of the 2011 Census.
- them not having completed a Census record.
- linkage error due to coercion to a later spine, insufficient information for linkage, or the record not being available.

Furthermore, a commitment by ABS to not use names from the 2011 Census for data linkage purposes resulted in lower linkage rates due to less identifying information available for use (Biddle and Marasinghe 2021).

The 2011 Census data were analysed because whilst it results in fewer ex-serving ADF members (compared to 2016 Census); it provides a greater number of suicides to analyse. Notably a limitation of using the 2011 Census (compared to 2016 Census) is the information is less current.

Uncertainty in the estimates

All data are subject to some level of uncertainty. For the data presented in this analysis the sources of uncertainty include:

- Linkage error: Uncertainty is introduced when there is error in linking data sets. The data used in this report carries some risk of linkage error.
- Timeliness of data: Some of the data used in this analysis was collected on 2011 Census Night (9 August 2011) and are a snapshot in time. For the purposes of the analysis, the reported characteristics are assumed static for the duration of the scope period. However, these characteristics (e.g. education and employment status) can change over time, particularly for certain population groups. The use of out-of-date information introduces a source of error to the analysis.
- Small numbers of observed suicides: Suicides among ex-serving ADF males account for a small proportion of the data, and therefore have high margins of variability.
- Randomness in the timing of suicides: The number of deaths by suicide that occur in different time intervals of the same length are expected to fluctuate, even if the underlying population risk remains the same. The exact distribution of the counts is unknown. With deaths by suicide being a rare event, it is assumed in this report that the counts follow a Poisson distribution. If this is the case, then the level of uncertainty due to randomness decreases as the number of deaths by suicide in the study period increase.

Statistical methods

Proportion ratios

Proportion ratios measure the degree of inequality between populations, i.e. comparing the proportion in one population to the same proportion in another population. Proportion ratios are sensitive to size of the populations, and are subject to volatility when used with small numbers, and so should be used with caution when comparing ex-serving ADF males who died by suicide to the Australian male population who died by suicide.

The proportion ratio is calculated by dividing the proportion in a study group by the proportion in a control group.

Figure 11: Formula for calculating proportion ratios

$$\text{Proportion Ratio} = \frac{\text{Proportion (ex – serving ADF males who died by suicide)}}{\text{Proportion (total ex – serving ADF males)}}$$

$$\text{Proportion Ratio} = \frac{\text{Proportion (ex – serving ADF males who died by suicide)}}{\text{Proportion (Australian males who died by suicide)}}$$

When the proportion ratio is greater than 1, it suggests an increased risk of the outcome in the study group. When a proportion ratio is less than 1, it suggests a reduced risk of the outcome in the study group. If the proportion ratio is 1 or close to one, it suggests no difference or little difference in risk.

Risk (Incidence proportion/Cumulative incidence)

Risk, otherwise known as incidence proportion or cumulative incidence, is the proportion of a population at risk that develops the outcome of interest (in this case, death by suicide) over a specified time period (in this case, during the study period between 9 August 2011 and 31 December 2018 inclusive). Utilising this statistical measure required the 2011 Census data to run under the assumption that any

socioeconomic characteristics reported at the time of the 2011 Census persisted until the end of the study period without migration into or out of the population, as it represented a static snapshot in time without a temporal component. Risk per 100,000 for the study period can be found in the accompanying supplementary data tables (Table S3).

Figure 12: Formula for calculating risk

Risk of dying by suicide among ex-serving ADF males:

$$\text{Risk} = \frac{\text{Ex-serving ADF males who died by suicide}}{\text{Total ex-serving ADF males}}$$

Risk of dying by suicide among Australian males:

$$\text{Risk} = \frac{\text{Australian males who died by suicide}}{\text{Total Australian males}}$$

Risk ratios

Risk ratios (RR), also referred to as relative risk, is a measure that gives an indication of the strength of an association. The RR is calculated by dividing the risk in an exposed group by the risk in an unexposed group. For example, the Australian males is the unexposed population, while the ex-serving ADF males is the exposed population. In this report, risk ratios were estimated without controlling for other socioeconomic characteristics. RRs are subject to volatility when used with small numbers, and so should be interpreted with caution when comparing risks among ex-serving ADF male subgroups or between ex-serving ADF males and Australian males.

Figure 13: Formula for calculating risk ratios

Risk ratio within ex-serving ADF males:

$$RR = \frac{\text{Risk}_{\text{ex-serving ADF males, subgroup}}}{\text{Risk}_{\text{ex-serving ADF males, reference subgroup}}}$$

Risk ratio within Australian males:

$$RR = \frac{\text{Risk}_{\text{Australian males, subgroup}}}{\text{Risk}_{\text{Australian males, reference subgroup}}}$$

Risk ratio between ex-serving ADF males and Australian males

$$RR = \frac{\text{Risk}_{\text{ex-serving ADF males}}}{\text{Risk}_{\text{Australian males}}}$$

When a RR is greater than 1, it suggests an increased risk of the outcome in the exposed group. When a RR is less than 1, it suggests a reduced risk of the outcome in the exposed group. If a RR is 1 or close to one, it suggests no difference or little difference in risk.

Using confidence intervals to test for statistical significance

This report uses confidence intervals of 95% in the calculation of proportion ratios and risk ratios. Broadly speaking, wider confidence intervals (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.

Statistical significance is 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% CIs are provided for the proportion ratios and risk ratios to indicate the level of uncertainty around these estimates due to random fluctuations in the number of suicides. It has been assumed that the number of suicides observed in the ex-serving ADF male population within the study period is random and follows a Poisson distribution. Estimates produced using low numbers can be sensitive to small changes in numbers of deaths over time and will therefore have wide CIs. 95% CIs are provided within this report as they may account for the variation in absolute numbers of deaths by suicide. It is important to note that there are other sources of uncertainty, such as data collection error and linkage error, that are not captured by the provided CIs.

Use of CIs is the simplest way to test for significant differences between ex-serving groups and Australian comparison groups. For the purpose of this report, differences are deemed to be statistically significant if CIs do not overlap with 1.0 for proportion ratios or risk ratios.

Acknowledgements

The AIHW thanks and acknowledges the large contribution by staff from a range of organisations in providing datasets and advice. These organisations are:

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

The AIHW also thanks and acknowledges contributions of internal staff from the AIHW; Data Integration Service Centre who conducted the data-linkage, Ethics Privacy and Legal Unit who facilitated the ethics approval process, Specialist Capability Unit who provided statistical guidance in the methods used for analysis and the Suicide and Self-Harm Monitoring Unit for advice on reporting on MADIP data for suicide analysis.

Abbreviations

ABS	Australian Bureau of Statistics
ADF	Australian Defence Force
AIHW	Australian Institute of Health and Welfare
Air Force	Royal Australian Air Force
Army	Australian Army
DVA	Department of Veterans' Affairs
PMKeyS	Personnel Management Key Solution
Navy	Royal Australian Navy
NMD	National Mortality Database
NDI	National Death Index

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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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Related material

Related topics

- [Suicide & self-harm monitoring](#)
- [Life expectancy & deaths](#)
- [Social determinants](#)

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